Construction Methods

JUNE 1949

A McGRAW-HILL PUBLICATION

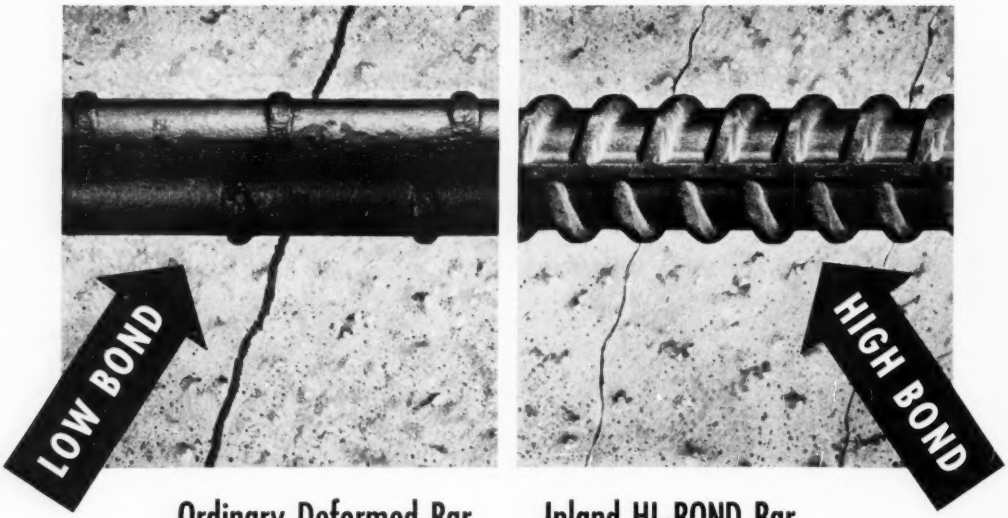
Crews working in unison lower new building floor into final position by jacking.

NEW BUILDING FLOOR JACKED TO PLACE

HOW ABOUT CARBIDE INSERT ROCK BITS?

AGGREGATE PRODUCTION AT BULL SHOALS DAM

Here's Why HI-BOND Reinforcing Bars Prevent Unsightly Cracks in Concrete



Ordinary Deformed Bar **Inland HI-BOND Bar**

Wide cracks in tensile-stressed concrete, which mar structural beauty and allow reinforcing-bar corrosion, can now be prevented by the use of Inland HI-BOND reinforcing bars. This has been proved by National Bureau of Standards tests which show that the greater the bonding efficiency of the reinforcing bars used, the smaller the width of cracks.

Inland HI-BOND has *superior* bonding strength because its deep, reversed, double-helical ribs anchor firmly in the concrete. By preventing slipping, HI-BOND eliminates wide cracks and permits more efficient and economical structures.

Specify HI-BOND for your next concrete reinforcing job. This superior bar *more than meets* the requirements of the new ASTM Specification A 305-47T covering reinforcing bars. Write for complete information on Inland HI-BOND.

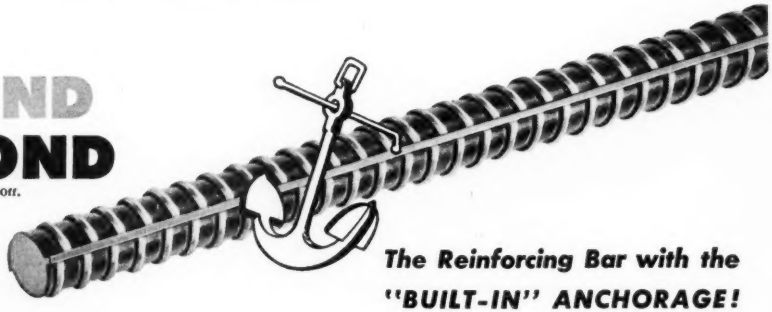
Write for Booklet

INLAND STEEL CO.
38 S. Dearborn St., Chicago, Ill.

Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND
HI-BOND
Reg. U. S. Pat. Off.

INLAND STEEL



The Reinforcing Bar with the "BUILT-IN" ANCHORAGE!

OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES

Tires with double bruise protection slash tire costs as much as 50%

THE B. F. Goodrich *Universal* tires shown above have been in daily *quarry service* for over 21 months! They're still going strong and are in good condition, as the picture shows. Another operator reports over 4500 service hours from Universals against only 1600 hours from another make used in identical service.

Such comparisons help point out the great difference between various makes of off-the-road tires. When *results* are measured, B. F. Goodrich tires always stand out. But there's no mystery to it. There are several reasons for the consistent top performance of BFG tires. Notice the tread on the tires in the picture. It's designed to give traction both ways. More than that, it is made of specially compounded, cut-resistant rubber . . . armor against sharp rocks and a score of other off-road tire killers.

Also, BFG tires have double bruise protection in the form of a *double nylon shock shield*. The nylon shock shield consists of layers of nylon cord built between the tread and the body plies. Under load and under impact, the strong, elastic nylon shields the rayon cord body . . . and there are *two* such shields for *double* protection!

Only B. F. Goodrich gives you the added protection of the nylon shock shield . . . the additional saving through (1) longer tire life (2) increased bruise resistance (3) less danger of tread separation (4) increased number of recappable tires. And the nylon shock shield costs nothing extra; you pay no premium.

There is a specially designed BFG off-the-road Silvertown for every need — see your B. F. Goodrich dealer or write us direct. *The B. F. Goodrich Company, Akron, Ohio.*

Truck Tires BY

B.F. Goodrich

PUSH

An Oliver "Cletrac" crawler tractor and its Heil dozer puts a big "push" behind any dirt moving job. The extra pushing power you get with an Oliver "Cletrac" permits you to handle bigger loads . . . get the job done faster! Here's why:

With the Oliver "Cletrac" exclusive steering principle, there is always power on both tracks . . . you never have to sacrifice "push" to make a turn. When you pull back on the steering lever, the track on that side slows down, the other speeds up to give you a power turn with plenty of load-handling ability. And, the off-center loads of dozing operations can be handled with no loss of time since the pull of the off-center load can be balanced by speeding up the track on the more heavily loaded side. You don't have to "zigzag" . . . can travel a straight line for most effective dirt moving.

For all the facts on Oliver "Cletrac" tractors and their time-saving, cost-cutting steering, see your Oliver "Cletrac" Distributor.

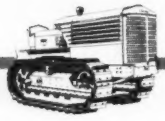
Cletrac

a product of

THE OLIVER CORPORATION

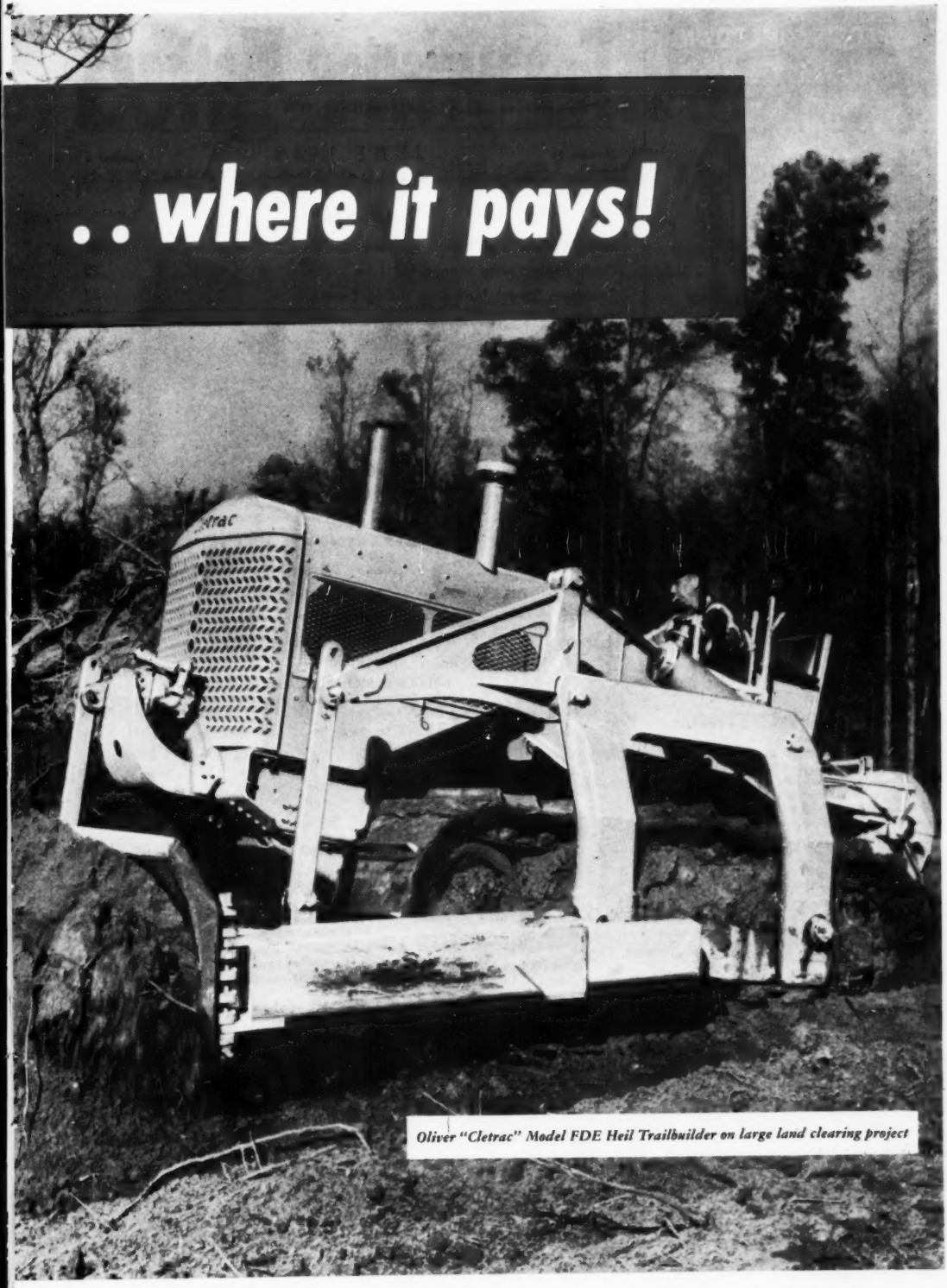
Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio

A Complete Line of Crawler and Industrial Wheel Tractors



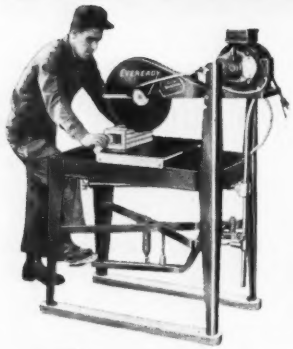
"THE SIGN OF EXTRA SERVICE"

. . where it pays!



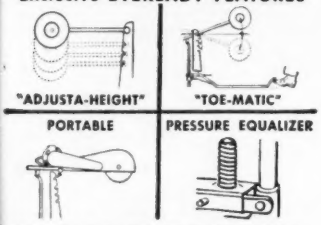
Oliver "Cletrac" Model FDE Heil Trailbuilder on large land clearing project

Your COSTS COME DOWN with *EVEREADY* BRIKSAW



Lowest masonry cutting costs are yours . . . you can actually save the cost of your EVEREADY BRIKSAW on 1 job and you can do better work faster because BRIKSAW has these . . .

Exclusive *EVEREADY* FEATURES



"ADJUSTA-HEIGHT" | "TOE-MATIC"

PORTABLE | PRESSURE EQUALIZER

WET OR DRY CUTTING

Take your choice . . . change in a second from dry cutting to *dustless* wet cutting. 4 seconds to adjust cutting head height with "Adjusta-Height"! Blade pressure automatically adjusts to hardness of material. "Toe-Matic" provides instant head angularity control. 21 seconds to remove cutting head, instant portability.

CUT ANY MATERIAL IN 4 TO 21 SECONDS

TILE BRICK PIPE CONCRETE GLASS

Abrasive blades for dry or wet cutting. Diamond blades for wet cutting. A blade for ANY job.

EVEREADY slices through ANY material ANY SIZE in seconds . . . wet or dry. Can be bought equipped originally for dry cutting. **Later inexpensive wet cutting kit can be installed** in a few minutes.

WRITE FOR NAME OF NEAREST DISTRIBUTOR

EVEREADY BRIKSAW CO.

1511 S. Michigan Blvd., Chicago 5, Ill.

Without obligation send information on EVEREADY BRIKSAW and blades for cutting . . .

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ADDRESS _____

CITY _____ STATE _____

Construction Methods

ESTABLISHED 1919

Volume 31 | JUNE 1949 | Number 6

CONTENTS

New building floor jacked to place 36
Photo contest prize winners for June 40
Television towers built with sliding forms 43
Biggest ditcher digs Houston sewer 44
Carbide bits make good on two jobs 50
Tower traveler lifts self by bootstraps 56
Equipment maintenance—Winter overhauling means profits 62
Cited for Service—Del E. Webb 70
Aggregate production at Bull Shoals Dam 82
Mobile loader speeds skip-charging job 94
CASH PRIZES FOR PHOTOGRAPHS 40

DEPARTMENTS

Cuts and Fills 35
Construction Details 74
Job Oddities 58
News Reel 100
Legal Decisions Concerning Construction (Formerly Tractor Conn) 89

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Long-Time Durability

MATCHES DEPENDABLE 'INCOR' *HIGH EARLY STRENGTH*

JUST 20 YEARS AGO, 'Incor' 24-Hour Cement with lightweight aggregate was used in precast roadway and sidewalk slabs for the double-leaf bascule bridge over Chicago River at Wabash Avenue: 3400-lb. compressive strength in one day . . . concrete slabs piled by crane 8 to 20 hours after casting . . . forms used twice a day, saving 50%. *Dependable 'Incor' HIGH EARLY service strength.*

Concrete had to be dense, watertight . . . moisture absorption would affect balance between leaves and counter-weights: 20 years' exposure have had no effect on the span's delicate balance . . . "Maintenance-free service has saved City money," say Bridge Engineers. *Dependable 'Incor'* LONG-TIME durability.* Typical performance of America's FIRST high early strength portland cement.

*Reg. U. S. Pat. Off.

LONE STAR CEMENT CORPORATION
LONE STAR PORTLAND CEMENT
'INCOR' HIGH EARLY STRENGTH PORTLAND CEMENT
"INCOR"
LONE STAR AIR ENTRAINING PORTLAND CEMENT
LONE STAR MASONRY CEMENT

LONE STAR CEMENT CORPORATION

Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

Over a Million

The Euclid Loader delivered an average of 775 cu. yds. into hauling units every hour throughout this high-speed job.

Steep, smooth sides of the improved hopper and full length and width door opening shed the big loads fast in even windrows on the fill.

EUCLID
THE PIONEER

EUCLIDS

Yards in 60 Days!

A Euclid Loader and 6 improved Bottom-Dump Euclids teamed up to move most of the 1,256,000 cu. yds, of earth for Colorado City Dam in Texas. Contractor Harry Campbell of Ft. Worth completed the job in only 60 working days!

The dam is 4,500 ft. long and 74 ft. high, with a main earth embankment 1,600 ft. in length. It will furnish water for a steam generating plant of Texas Electric Service Company and a municipal supply for Colorado City.

At the peak of operations the Loader, "Eucs," and other hauling units attained hourly production of over 950 cu. yds., averaging 775 cu. yds. per hour for the entire job. Powered by diesel engines of 190 h.p., the Bottom-Dump "Eucs" maintained high speeds with capacity loads on the 3,200-ft. haul. The 24.00 x 25 tires on drive and trailer wheels provided excellent traction and flotation on the fill.

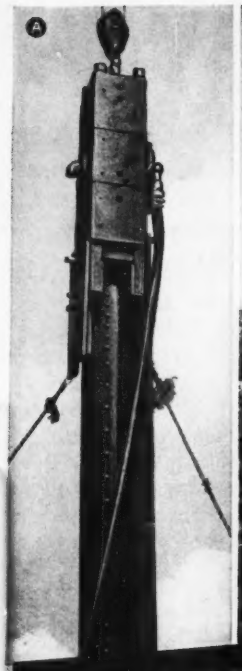
Operators on the job liked the comfortable form-fitting seat, mounted on a hydraulic shock absorber and adjustable for weight and position. The Euclid air booster steer reduced driver effort on turns and gave positive control at all times. An improved hopper design shed the big, 16-yd. loads fast in even windrows for easy spreading and compaction — saved time on every trip.

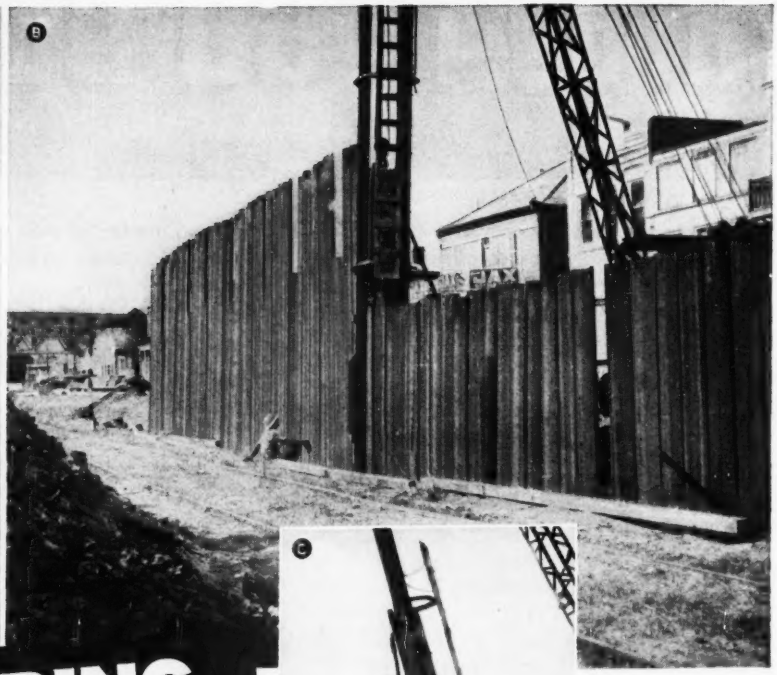
Ability of "Eucs" and the Loader to stay on the job day after day and move dirt faster kept this rush project in high gear and enabled the contractor to complete Colorado City Dam on schedule. Write today for literature on the improved Bottom-Dump and other new models.

THE EUCLID ROAD MACHINERY CO.
CLEVELAND 17, OHIO
CABLE ADDRESS . . . YUKLID

Good haul roads enabled the "Eucs" to travel at high speed with capacity loads. Top speed of this Euclid model with full payload is 34.4 miles per hour.

Move the Earth





CURBING The Treacherous Atchafalaya

(A) Berwick, La. McKiernan-Terry Double-Acting Pile Hammer, in "pants" guide, driving foundation piling for the new floodwall. (B) McKiernan-Terry Hammer driving 20-ft. steel sheet piling for the Morgan City floodwall. (C) Driving timber batter piles, to care for the overturning moment, Morgan City. *Contractors: Morgan City, Keller Const. Co. Berwick, Hendry Corp. Photos courtesy U. S. Engineers.*

Three times since the turn of the century has the Atchafalaya River, torrenting past Morgan City and Berwick, La., devastated those cities with heavy floods. Now new, strong floodwalls on both sides of the river provide instant protection from rising waters.

To drive the heavy steel sheeting and timber batter piles for these floodwalls McKiernan-Terry Double-Acting Hammers, a 9-B-2 and a No. 7, were the contractors' choice.

Engineers and contractors know they can always secure the right hammer for any specified pile-driving need in the McKiernan-Terry line. A choice of ten standard sizes in Double-Acting Pile Hammers, five sizes in Single-Acting Hammers and two Double-Acting Pile Extractors.

FOR FURTHER INFORMATION

Write for latest literature giving specifications, special advantages and other data on McKiernan-Terry Pile Hammers, to keep on file for handy reference.

McKIERNAN-TERRY FACILITIES

Coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment are among the many other important products of McKiernan-Terry engineering and manufacturing skill, performing important service to industry, the railroads and our government.

McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS • 14 PARK ROW, NEW YORK 7, N. Y.

MK-267

McKiernan-Terry PILE HAMMERS AND EXTRACTORS

Every Pound of Weight is on a Wheel THAT DRIVES AND STEERS

That's Why These Graders Outperform All Others

Dominant in the field, these Austin-Western Power Graders owe their matchless performance to *completely effective* use of power. Through All-Wheel Drive, every pound of weight is a powered pound, harnessed to a driving wheel — and contributing every ounce to tractive effort. This tremendous traction — perfectly directed and controlled through All-Wheel Steer — provides superb earth moving ability, and mastery of all types of work from routine grading and ditching to operations never before possible with any motor grader.

Additional values are offered by specialized attachments—many exclusively Austin-Western — which greatly increase the usefulness and day-in and day-out profit making ability of the graders.

Power and control at all four wheels has been pioneered and perfected in grader application by Austin-Western. . . . The "88-H," "99-H," and Master "99" set performance standards unequalled in power grader history.

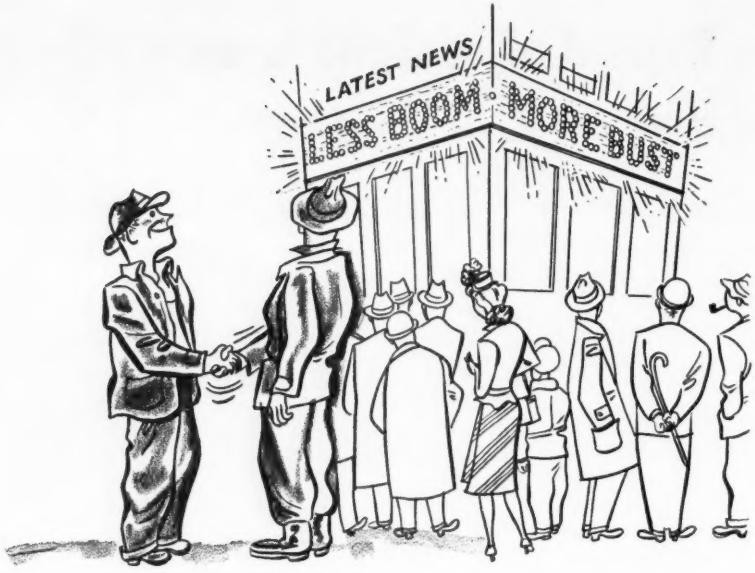
AUSTIN-WESTERN COMPANY
Aurora, Illinois, U. S. A.

"88-H" Ditching around short radius curves is easy for an "88" or "99"— impossible with any other grader.

"99-H" All-Wheel Drive and Steer make it possible to slope banks beyond the reach of any other grader.

Master "99" All-Wheel Drive and Steer make it safe to drive close to the jagged edge of a steep bank.

BUILDERS OF ROAD MACHINERY
Austin Western
SINCE 1859



Good News for Blasters!

THE ROCKMASTER 16 Blasting System is *new*. And it's good news for blasters. *Now*, Atlas brings you a *sixteen-stage* milli-second delay system that cuts noise and vibration as much as 60% . . . gives you better breakage that reduces the cost of handling and milling rock.

There's more to this story. ROCKMASTER 16 helps you produce more material per pound of explosive . . . gives you more footage per round. *Sixteen* periods—a wide choice of short or long milli-second delays—add up to better control over throw, back-break, and material size. *Sixteen* delay periods fire within 550 milli-seconds!—there's less strain on timbers and roof . . . less dust and a quicker return to the face.

From pits, quarries, underground workings, and construction jobs we hear that ROCKMASTER 16 cuts drilling and secondary shooting . . . saves on time, labor, and dynamite. No wonder they're saying "*ROCKMASTER 16 is the greatest improvement in blasting methods since Atlas introduced milli-second blasting in 1945.*" Ask your Atlas representative to show you where ROCKMASTER 16 fits into your operations.

ROCKMASTER 16 TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

ROCKMASTER: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

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CRAWLERS PLUS POWER

to meet TOUGH conditions on the job!

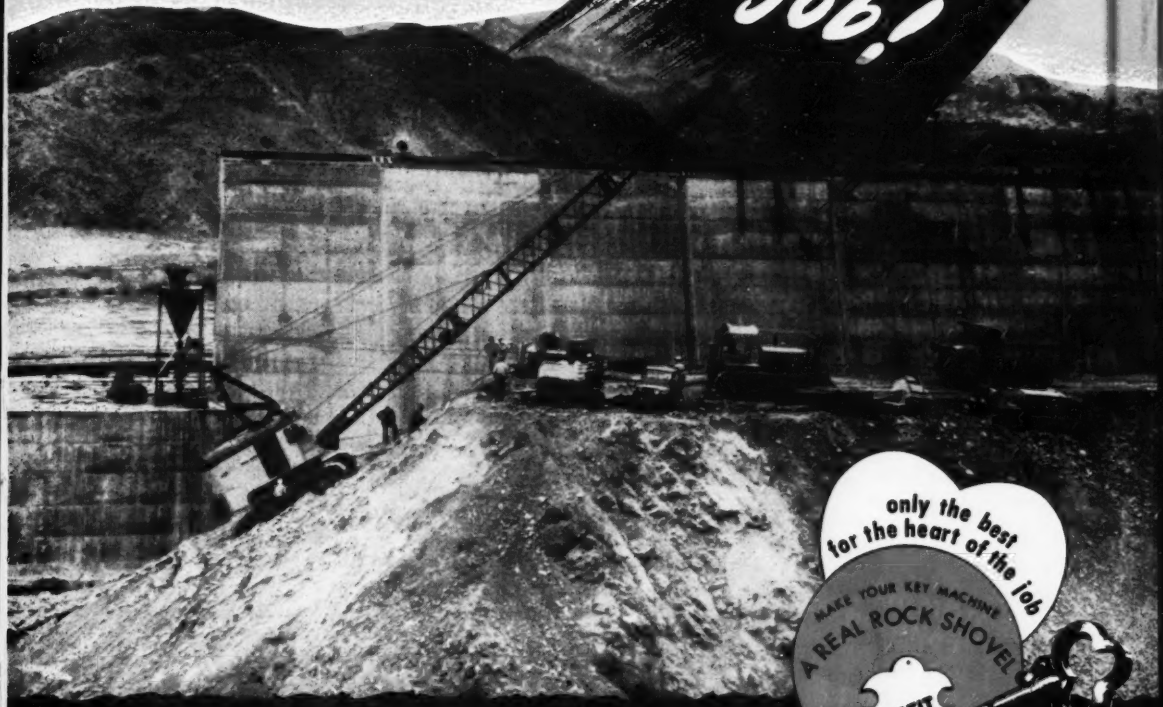
Here's a case where engine power meant money. The smooth operation and high power of Northwest engine equipment and Northwest crawler equipment saved hours of time on this job at Davis Dam. Northwest ability to negotiate this 30° slope meant the difference of getting the machine on the new location quickly or a 3 mile trip.

Northwest equipment brings you the power and versatility to meet tough conditions on tough jobs with the minimum of lost time.

It is just another of the many advantages that make one out of every three Northwests a repeat order.

You can't afford anything but the best for the heart of the job. Plan ahead now to have a Northwest in the *Key Spots!* Let us tell you how.

NORTHWEST ENGINEERING COMPANY
1503 Field Building, 135 South LaSalle Street
Chicago 3, Illinois



only the best for the heart of the job

MAKE YOUR KEY MACHINE A REAL ROCK SHOVEL

PROFIT

NORTHWEST

CRAWLER AND TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

FOR 50 YEARS

SCHRAMM

HAS LED THE WAY WITH

"FIRSTS"

IN AIR COMPRESSOR IMPROVEMENTS

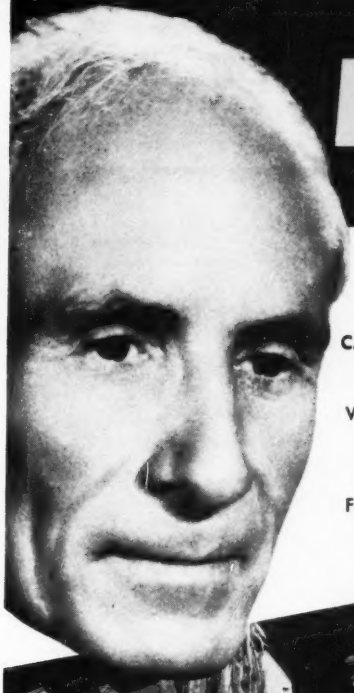
1900	Independent service and repair shop for Industrial Compressors and Power Plants in Philadelphia.
1908	First really portable Engine Driven Compressor built.
1917	Multi-Cylinder Engine Driven Multi-Cylinder Compressors.
1918	Designed and built SCHRAMM engines for operating SCHRAMM Compressors.
1918	Portable Compressor with clutch between Engine and Compressor.
1919	Portable Diesel Engine Driven Compressor.
1923	Electric starting standard on all engine driven models.
1935	Built two-staging portable Engine Driven Compressors, also air-cooled single and two stage models.
1936	Perfected mechanical intake valve, the most progressive improvement in Portable Compressor design. Also eliminated out-moded two stage and air cooled compressors.
1938	Built live, self-sealing, easy turning Hose Reels.
1940	Designed large substantial tool boxes for carrying large assortment of air tools.
1949	The *PNEUMASTAT* another SCHRAMM innovation, that cuts fuel costs up to 50%. Also the SCHRAMM engine and compressor block with interchangeability of parts, became standard equipment on the model #105.

Model No. 105 De Luxe With Streamline Tool Boxes

SCHRAMM INC.

THE COMPRESSOR PEOPLE • WEST CHESTER • PA.

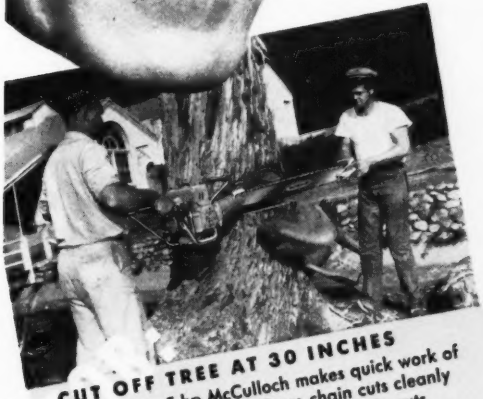
"From then on, we bought McCULLOCHS"



Ralph C. Puckett

CALIFORNIA TREE SERVICE, Los Angeles, says

"We really gave our first McCulloch chain saw a work-out. We tested it on big trees, little trees, branches, hard wood, soft wood, palm, roots, knots, and angle cuts. We found the McCulloch cut faster, was easier to use and carry, and saved money on sharpening. From then on, we bought McCullochs. We've now got ten more like the first, and they're all the best saws we've ever used."



CUT OFF TREE AT 30 INCHES

The 5-hp McCulloch makes quick work of big trees. The Rip-Cross chain cuts cleanly in any direction—saves time on angle cuts and roots, as well as crosscut or rip.

LIMB AND BUCK FELLED TREE

Light weight (49 lb. as shown) and good design make McCullochs easy to handle, save muscles and time. Another time-saver on the job is easy sharpening and no setting of chain teeth.

SIX MODELS AVAILABLE

All prices f. o. b. Los Angeles

20-inch Chain Saw..$385.00

30-inch Chain Saw..$395.00

40-inch Chain Saw..$405.00

50-inch Chain Saw..$415.00

60-inch Chain Saw..$425.00

20-inch Bow Saw...$425.00

NATIONWIDE SALES AND SERVICE

McCULLOCH MOTORS Corporation

6101 West Century Boulevard
Los Angeles 45, California

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Tune in . . .
TEXACO STAR THEATRE
presents MILTON BERLE
every Wednesday night.
See newspaper for time
and station.

TEXACO

TEXACO

"Ditch"

HIGH MAINTENANCE COSTS

Keep your engines clean by lubricating with Texaco Ursa Oil X**

GIVE your heavy-duty gasoline and Diesel engines the protection of *Texaco Ursa Oil X***, and they'll give you many extra hours of trouble-free, full-powered operation between overhauls . . . extra savings in fuel and maintenance.

*Texaco Ursa Oil X*** is a fully detergent and dispersive oil with unusually high resistance to oxidation. It keeps engines *clean*, rings free and valves active. It protects bearings against corrosion — protects all parts against wear. Use it to increase operating efficiency and economy of *all* engines in service.

To assure additional maintenance savings, lubricate chassis parts of all your construction equipment with long-lasting *Texaco Marfak* . . . use *Texaco Marfak Heavy Duty* in wheel bearings . . . and protect crawler track mechanisms with famous *Texaco Track Roll Lubricant.*

Let a Texaco Lubrication Engineer show you how Texaco Products and the Texaco Simplified Lubrication Plan can help you cut costs on every job. Call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Compare this C TOURNAPULL

600′ Haul . . . 20 pay loads per hour. R. V. McElroy Construction Co., Decatur, Ill., relocating U. S. 40, compared new C Tournapull performance with another self propelled unit on rubber. Both worked exactly the same cycle in hard-packed clay. McElroy's new "C" completed trips in ⅓ less time . . . moved 43% more pay yards per hour. "Cap" Kennedy, grade foreman, said, ". . . new 'C' is the best piece of equipment I ever saw".

200′ Haul . . . 42 pay loads per hour. Contractor Elmer Anderson, Lisle, Minnesota, widening and regrading county roads, used two C Tournapulls with Tournadozer pusher. Rigs loaded 10 to 11 cu. yds. of loam and clay in only 36 seconds . . . spread in 18 seconds . . . completed 400′ cycle every 1.3 minutes. Each "C" averaged 420 pay yards per hour . . . "performing beyond my expectations", said Elmer Anderson.

700′ Haul . . . 16 pay loads per hour. Frank Braden Construction Co., Hastings, Neb., opening new cuts on Iowa State road job proved their 5 new C Tournapulls and 2 Tournadozers beat crawlers on every type operation. Braden's "C's" completed 1400′ cycle every 3.2 minutes over soft, rutted haul averaging 10 pay yards in wet clay. "Superior to crawler-scraper combinations on any length haul", says contractor Frank Braden.

Send for Complete Facts

To: R. G. LeTOURNEAU, Inc., PEORIA, ILL. Please send information on "C" TOURNAPULL:

☐ Specifications ☐ Price ☐ Delivery ☐ Would like job analysis on present operations

NAME..... TITLE.....

COMPANY..... TYPE OF BUSINESS.....

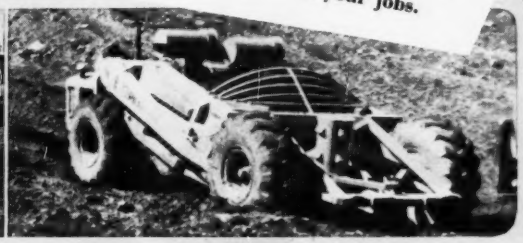
STREET..... CITY, STATE.....

Would also like information on ☐ 7-yard "D" ROADSTER ☐ 19 m.p.h. Super "C" TOURNADOZER

long and short haul performance *with your* crawler-scraper output!

See for yourself how much more profit you make with modern, high-speed, electric-control Tournapulls. Actual on-the-job production figures *prove* you get lowest-net-cost-per-yard with these modern dirtmovers. Long or short hauls, good going or bad, high-speed Tournapulls are your best job and profit insurance. Compare for yourself . . . then call your LeTourneau Distributor and have him estimate production with electric-control Tournapulls on your jobs.

1400′ Haul . . . 11 pay loads per hour. McLean-Astleford Co., Minneapolis, Minn., grading 40,000-yd. cemetery addition, used 3 new C Tournapulls . . . kept ahead of job schedule by moving 75% total yardage in first 8 days. "C's" loaded 10 to 11 pay yards of sand top-soil in 1 minute . . . used paved roads without surface damage . . . completed 2800′ cycles every 4.5 minutes. Each "C" averaged 115 pay yards an hour!



1700′ Haul . . . 5 pay loads per hour. Hodge Mining Co., Cartersville, Ga., moves 100% of their 3400-lb.-per-yard, ore-bearing clay from pit to washer with 3 new C Tournapulls. Each "C" averages 9.5 cu. yds. per load . . . completes 2900′ cycle over adverse grades to 25% every 12 minutes . . . delivers 47.5 pay yards per hour. John Hodge, owner, confirms that his 3 "C's" are moving 25% more ore than 4 tractor-scraper units they replaced.

1600′ Haul . . . 11 pay loads per hour. Sager Construction Co., St. Louis, Mo., grading new Illinois airport, used 2 new C Tournapulls. Both "C's" consistently loaded 10 pay yards of topsoil and clay in 45 seconds . . . averaged 4.4 minutes to complete 3200′ cycles . . . moved 2300 pay yards per 10-hour day. L. U. Steinhoff, job superintendent, reported, ". . . they made two trips to a crawler's one". Sager ordered two additional Tournapulls.

2500′ Haul . . . 10 pay loads per hour. Contractor John O'Keefe, De Pere, Wis., moved 600,000 yds. of blow sand from bluff-top for Mississippi River Bridge approach with five C Tournapulls. O'Keefe's new "C's" averaged 11 pay yards per load . . . completed 5000′ cycles over 12% grades and fresh fill in only 6 minutes . . . "these new Tournapulls beat anything built yet", said foreman Bob O'Keefe.

Tournadozer, Tournorail — Trademark Reg. U. S. Pat. Off. CT17

LETOURNEAU PEORIA, ILLINOIS — HIGH-SPEED RUBBER-TIRED **TOURNAPULLS**

MORE YARDS PER HOUR WITH RUBBER-TIRED POWER

A Thor

32 LB.

Model No. 17—Length, 22". For breaking up concrete floors, tearing down brick or concrete walls, ripping out building timbers, and other general demolition. Easy to handle from scaffolding and in close quarters.

59 LB.

Model No. 23—Length, 25¼". A medium weight breaker in wide use for cutting wall, floor and street openings, and spike driving, where a hard-hitting, easily held machine is preferred.

70 LB.

Model No. 24—Length, 28". Thor's great new breaker in the heavy duty class at a weight under standard heavy duty tools. Powerful hitting, it's easier-to-handle weight makes it the speed king in its class.

EVERY SIZE THE MOST

See the complete line of Thor Breakers at Thor distributors everywhere, or write for Catalog MC1.

INDEPENDENT PNEUMATIC TOOL COMPANY

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Export Division: 330 West 42nd St., New York 18, N. Y.

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BREAKER FOR EVERY JOB!

84 LB.

Model No. 25—Length 24½". Easily the most powerful and most widely used heavy duty breaker in the field—extremely powerful for all types of heaviest demolition work and spike driving.

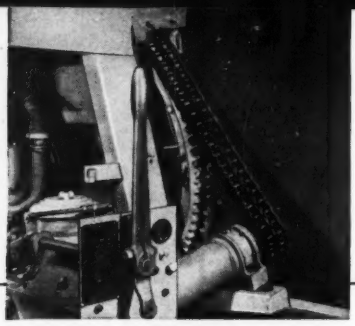
SHEETING DRIVER

Model No. 25S—Length 29¼". The powerful, heavy duty model 25 breaker fitted with attachment for driving steel or wood sheeting up to three inches thick.

POWERFUL IN ITS CLASS!

Thor PORTABLE POWER TOOLS

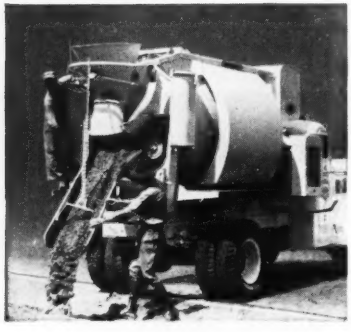
PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS



THE CHAIN TAKES THE STRAIN

The exclusive Rex chain drum drive eliminates stresses and strains. The chain protects transmission . . . gears . . . shafting . . . power plant. It eliminates binding between drum and transmission as the truck chassis weaves over uneven ground. The chain effectively dampens vibration, assuring far less driver fatigue.

Life-Saver
Cost-Saver
Time-Saver
REX
Hi-Discharge
Moto-Mixer



Lower Maintenance and Operating Cost

The Rex drum drive is a weight-saver. It eliminates the need of bulky, excessively heavy transmission cases, shafting, bearings, etc. This saving in weight here permits Rex to build added strength into parts where it is really needed . . . blades, drum rollers, drum shell and drum support. Here's why Rex gives you lower maintenance costs and assures less operating time.

Time-Saving, Fast Discharge

You'll save minutes every batch with Rex Moto-Mixers. Since Rex mixes in the discharge direction, the batch is always right up at the opening . . . ready to come out in a hurry. Deep spiral scoops speed the batch out *fast!* Remember, it's at the job site where speed is important to avoid holding up your customer's schedules.

Combine all these features and you'll see why Rex is far more economical to operate and maintain. For all the facts, see your Rex Distributor or write for Bulletin No. 468. Chain Belt Company of Milwaukee, 1664 West Bruce Street, Milwaukee 4, Wis.

CHAIN BELT REX COMPANY

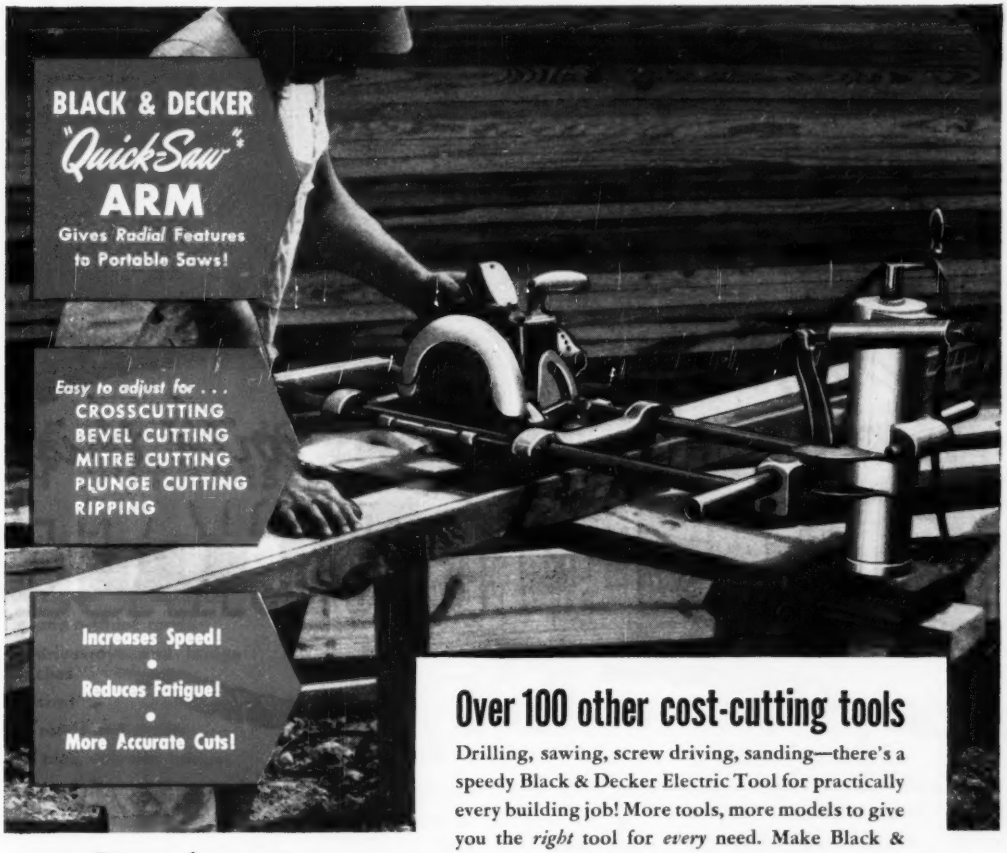
CHAIN BELT COMPANY *OF MILWAUKEE*

REX CONSTRUCTION MACHINERY

Moto-Mixers • Moto-Agitators

SAVES
✓TIME
✓LABOR
✓MONEY

● Use a Black & Decker Quick-Saw Arm ($148.00) to make a *positive* set-up for repeated pre-fab cutting. Use its flexibility of adjustment to make many kinds of cuts. Either way you save plenty of building time and money! All 3 B&D Electric Quick-Saws (and most other makes) fit into its carriage in a jiffy. Ask your nearby Black & Decker Distributor for a free demonstration today. Write for detailed catalog to: The Black & Decker Mfg. Co., 659 Pennsylvania Avenue, Towson 4, Maryland.



Over 100 other cost-cutting tools

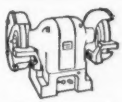
Drilling, sawing, screw driving, sanding—there's a speedy Black & Decker Electric Tool for practically every building job! More tools, more models to give you the *right* tool for *every* need. Make Black & Decker your "Electric Tool Headquarters." Select your tools from the *world's most complete line!*

*Trade Mark Reg. U. S. Pat. Off.

Electric Quick-Saws

Electric Drills

Portable Sanders


Bench Grinders

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker
PORTABLE ELECTRIC TOOLS

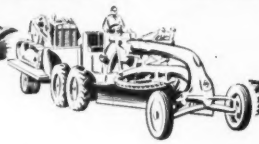
HD-5 TRACTOR

HD-5 TRACTOR with Tracto-Shovel and its interchangeable attachments—1 cu. yd. standard bucket, ¾ cu. yd. narrow bucket, 2 cu. yd. snow loader bucket, 1 cu. yd. rock bucket, bucket teeth, heavy-duty bulldozer blades, V-type snowplow.

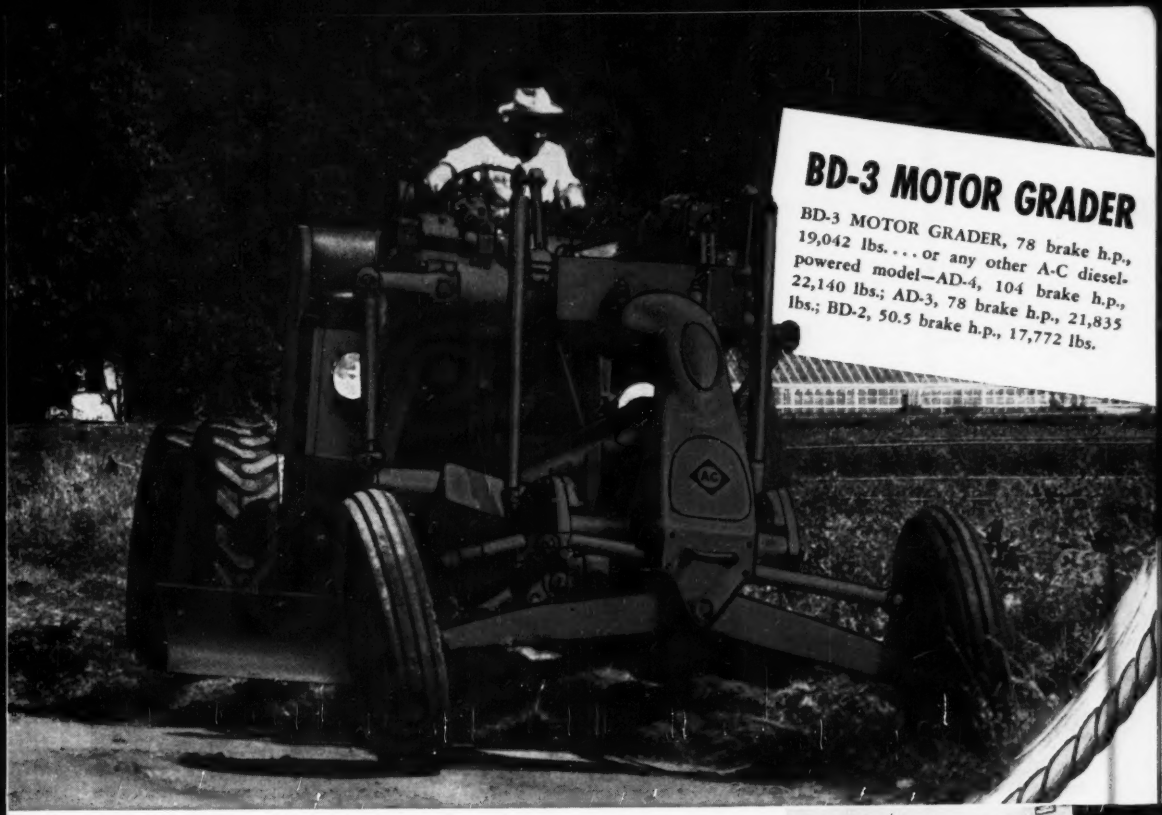
Wrap up

YOUR YEAR 'ROUND PROBLEMS *with this*

EQUIPMENT PACKAGE



Reduce your equipment investment with this equipment package. No need to have a number of specialized machines for various jobs. Any maintenance work . . . and much of your construction . . . material handling . . . snow removal and loading are quickly, efficiently done with this versatile combination—AT BIG SAVINGS. Let your Allis-Chalmers dealer tell you all about this LOW COST, BUDGET STRETCHING PLAN . . . NOW!



BD-3 MOTOR GRADER

BD-3 MOTOR GRADER, 78 brake h.p., 19,042 lbs. . . . or any other A-C diesel-powered model—AD-4, 104 brake h.p., 22,140 lbs.; AD-3, 78 brake h.p., 21,835 lbs.; BD-2, 50.5 brake h.p., 17,772 lbs.

SOME OF THE JOBS YOU CAN DO WITH JUST THESE TWO MACHINES

- Clean and shape-up ditches
- Cut and smooth backslopes
- Handle regular maintenance
- Widen and reshape roads
- Make driveways and bridge approaches
- Build berms
- Scarify roads and streets
- Backfill pipe, culverts, bridges
- Take out cuts
- Remove and load sod
- Load surplus dirt from shoulders and ditches
- Remove and load topsoil
- Make fills
- Handle bulldozing
- Make channel changes
- Plow, move and load snow from roads and streets, alleys, parking lots, cemeteries, institutions
- Skid trees
- Load rocks and stumps
- Dig and load dirt
- Load sand, gravel and other material
- Mix black-top
- Do crane work
- Handle all types of hauling or pulling
- Straighten out curves
- Open and rebuild alleys and streets
- Build parking lots
- Cut away embankments obstructing sight

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

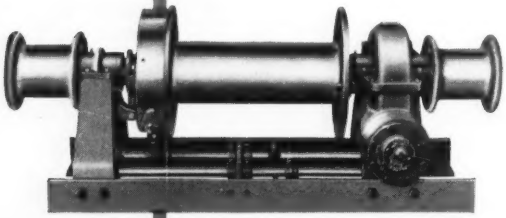
We trust the BIG jobs to Tulsa Winch

A steel erection firm's superintendent reports: "We trust the BIG jobs to Tulsa Winches, because we know they are safe, and will HOLD THE LOAD! Many times our men are forced to work directly under the load. They'd rather work with Tulsa Winch because they're sure that the worm brake will HOLD!"

Whatever the job, big or small, there's a Tulsa Winch for your truck or tractor. Tulsa Winches are manufactured with precision and care, and will give you years of trouble-free service. Tulsa Winches are SAFE, due to the specially-constructed gear-box, and the protection afforded by the automatic worm brake.

Write Tulsa Winch, Division of Vickers, Inc., 815 E. First, Tulsa, Oklahoma, for information and literature.

Winches available for trucks ½-ton up to 5-ton and larger.



Tulsa Winch
TULSA, OKLAHOMA
DIVISION OF VICKERS Inc.

Another "Right Spot" for a Versatile PAYLOADER!

Model HL Payloader loading truck in gravel pit

DIG • LOAD
GRADE • CARRY
BULLDOZE
EXCAVATE
LEVEL • STRIP
STOCKPILE
PUSH • PULL • LIFT
REMOVE SNOW

Yes, Payloaders do *many* jobs well because they are *complete* Tractor Shovels — not tractor attachments — and have features built into both tractor *and* shovel that guarantees more output on more kinds of jobs. For example: there are several speeds forward *and* reverse; separate, quick, directional shift; full-visibility operator location; rear engine mount giving more traction, balance and work capacity; powerful hydraulic digging action; automatic, even-keel carry position; fingertip hydraulic control of bucket dumping speed and bucket closing; sharp turning radius; large pneumatic tires all around for more traction and flotation; choice of gasoline or diesel power. And there are Hough's 28 years of tractor shovel design and building behind them. For the best in Tractor Shovels consult your Payloader Distributor or write The Frank G. Hough Co., 706 Sunnyside Avenue, Libertyville, Illinois.

SEND FOR CATALOGS
on any of the four sizes of Payloaders: the 10½ cu. ft. Model HA; the ¾ yd. Model HF; the 1¼ yd. Model HL; the 1½ yd. 4-wheel drive Model HM.

HOUGH
PAYLOADER
SAY HUFF
Manufactured by THE FRANK G. HOUGH CO.

Two of the world's largest Z-D Shell Roofs

of reinforced concrete made with Lehigh CEMENTS

Big-bomber repair hangar at Army Air Base, Rapid City, S. D., nearing completion. Its 102,000 sq. ft. of floor space will accommodate six B-29's or two of the very heavy B-36's.

DESIGNERS AND ENGINEERS: Roberts & Schaefer Co., Chicago, Ill. CONTRACTORS: Built under supervision of the Corps of Engineers, Department of the Army, by the Steenberg Construction Co., St. Paul, Minn.

Interior of the Hershey Sports Arena showing the reinforced concrete roof, which provides a clear span of 232 ft. covering an area of 78,880 sq. ft. at street level.

DESIGNERS: Roberts & Schaefer Co., Chicago, Ill.

ENGINEERS & BUILDERS: Hershey Lumber Products, Hershey, Pa.

In 1936, completion of the big Sports Arena at Hershey, Pa., was front-page news. It had what was then the largest single-span concrete roof in America. Today, new mammoth structures are setting world size-records. One of the latest is the Air Force big-bomber repair hangar at Rapid City, S. D. Its great dome roof rises 90 feet above the floor with a clear span of 340 feet.

Just as Lehigh Cement met the exacting requirements of these intricately designed roofs, so will it put stability and maximum strength in your construction.

Whatever your cement requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with your specific problems.

LEHIGH PORTLAND CEMENT
LEHIGH EARLY STRENGTH CEMENT
LEHIGH AIR-ENTRAINING CEMENT
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Lehigh CEMENTS

LEHIGH PORTLAND CEMENT COMPANY • ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

LORAIN BUILDS ITS OWN!*

THEW-LORAIN 1939 50th ANNIVERSARY 1889

***MOTO-CRANE**—a registered trade mark of the Thew Shovel Co., identifying a complete, intregral Thew-built rubber-tire machine—of turntable and carrier—with the carrier designed and built exclusively for a shovel-crane mounting.*

● One thing we've learned since we built the original of all truck cranes 30 years ago, is that no commercial motor truck built to transport static pay loads is a proper, long-lasting mounting for the highly concentrated live loads of today's big capacity cranes.

That's why in 1939, Thew-Lorain decided to design its own carrier mounting for rubber-tire cranes—a carrier designed to do a job no motor truck can do—a carrier designed and built completely by a shovel-crane manufacturer exclusively for use as a shovel-crane mounting.

Today over 5000 Lorain Moto-Cranes, all on Thew-designed-and-built carriers are in service. Here's proof that shovel-crane users recognize the "built-from-the-ground-up" advantages of the Moto-Crane's "integrated" design. Ask your nearest Thew-Lorain distributor to tell you why *it isn't a Moto-Crane if it isn't a Lorain.*

THE THEW SHOVEL COMPANY, Lorain, Ohio

Cable Address: UNLOADER

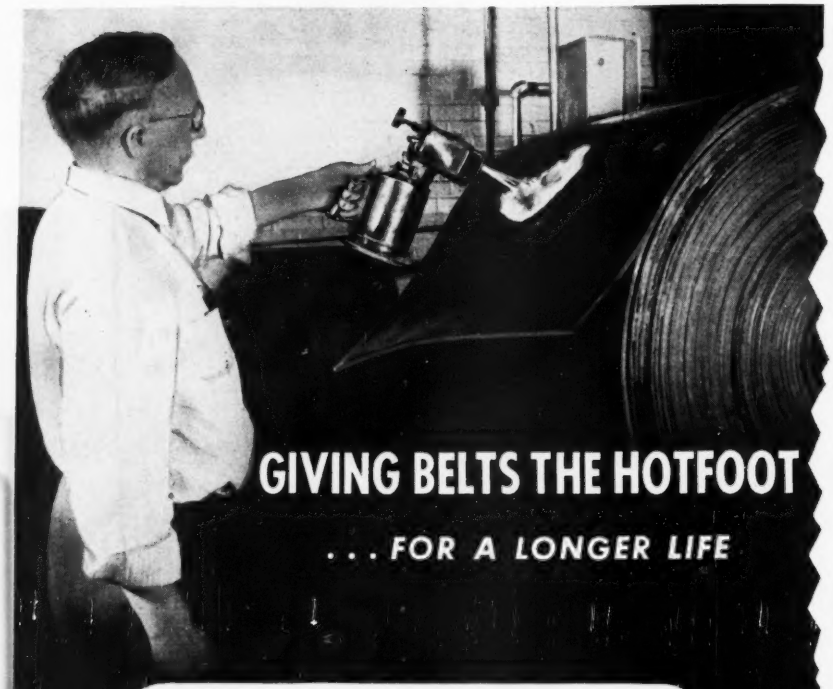
CHECK THESE MOTO-CRANE FEATURES

1. A shovel-crane carrier frame with built-in strength—not a makeshift or patch job.
2. 2 or 3 axle models; front wheel drive available.
3. Through drive on rear tandem axles on 6 wheel models.
4. Low and high speed travel ranges, 1 to 30 MPH.
5. Multiple tires for off-the-road soft ground flotation.
6. Thew patented rocker arm replaces springs on rear wheels of 6 wheel models.
7. Tractive effort to climb a 33% grade.
8. 3 sizes of Moto-Cranes; single engine self-propelled units a so available on Thew-built carriers.

Thew **Lorain**®

IT ISN'T A MOTO-CRANE IF IT ISN'T A LORAIN

CRANES • SHOVELS • DRAGLINES • MOTO-CRANES



GIVING BELTS THE HOTFOOT

. . . FOR A LONGER LIFE

QUAKER

RUBBER PRODUCTS

QUAKER CONVEYOR BELTS PRE-TESTED 18 TIMES TO ASSURE LONG LIFE UNDER MOST SEVERE CONDITIONS

Rock . . . cinders . . . sand—rough and tough treatment is the order of the day, every day in the construction industry and case histories prove Quaker Belts stand up under the most severe usage. They're pre-tested and torture-tested, when they are made, to withstand every operating condition.

One of the many tests Quaker Conveyor Belts must go through is shown above. A blowtorch, at high heat, held six inches from the surface of the belt for six minutes. Quaker Belts take it and are ready for more. They're tough, rugged and built for longer wear. They're made for the construction industry to assure less maintenance . . . to save loss of labor in repairs . . . to help you reduce the "break-even point" in your operations.

Whatever your need for industrial rubber products there's a Quaker Pre-tested Product for the Construction Industry. Power and conveyor belting for every type of installation . . . rod and sheet packings . . . moulded and braided hose . . . and all kinds of custom-made moulded rubber products. To economize . . . it pays to Quakerize your operations.

HOSE THAT STANDS ABRASION

All types of hose for water, air or oil. Every length of Quaker Hose is scientifically pre-tested to withstand proper pressures and extreme wear.

BELTING FOR MAXIMUM HORSEPOWER

Whether it is a heavy duty conveyor hauling rock or sand or a V-belt on a small machine Quaker has the belt to fit the need . . . to step up efficiency.

QUAKER RUBBER CORPORATION

PHILADELPHIA 24, PA. • New York 7 • Cleveland 15 • Chicago 16 • Houston 1
Western Territory
QUAKER PACIFIC RUBBER CO. • San Francisco 10 • Los Angeles 21 • Seattle 4

Ralph Myers Contracting Corporation, Salem, Indiana, has the million-dollar contract for site development of the new Veterans Administration Neuropsychiatric Hospital at Pittsburgh, Pa. Over 1,500,000 yards of dirt, rock and shale are to be moved on a tough time schedule.

GULF QUALITY LUBRICANTS and FUELS

Smooth the way to greater yardage on big Hospital Project

RALPH MYERS Contracting Corporation is one of many leading contractors who have found that the use of Gulf quality petroleum products insures smooth, dependable equipment performance and low maintenance costs.

Gulf gasoline and Diesel fuel are clean burning, have exceptionally low carbon content, and provide more efficient power. Gulf lubricants provide an extra margin of protection—prevent excessive wear that leads to mechanical delays.

Gulf Lubricants and Fuels team up to help contractors do a speedier, more profitable job!

GULF

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices: Boston · New York · Philadelphia · Pittsburgh
Atlanta · New Orleans · Houston · Louisville · Toledo

Land clearing—or any 'dozer work—is a pushover for International Diesel Crawlers. International diesels have the power and stamina to ram jobs through to completion at low cost and in minimum time.

International Power, geared to the ground by earth-grabbing tracks, puts maximum pull or push into the work for efficient earthmoving.

Get these International diesel advantages: advanced design fuel combustion, simplified fuel injection, positive all-weather starting, sensitive speed governing with torque control that increases engine torque as much as 15% when the load demands it, and the many other operating and construction features which International crawlers provide. They assure *superior performance, matchless operating economy* and *low maintenance;* benefits which spell PROFITS for International owners everywhere.

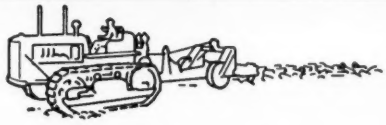
See *your* International Industrial Power Distributor or write for folder describing the International TD-18 Diesel Crawler.

INTERNATIONAL HARVESTER COMPANY · Chicago

Listen to James Melton and "Harvest of Stars" every Sunday, NBC.

Stand-ard on Power that Pays

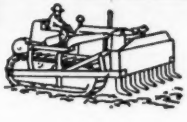
CRAWLER TRACTORS • WHEEL TRACTORS • DIESEL ENGINES • POWER UNITS

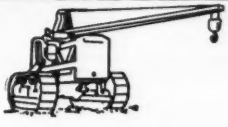


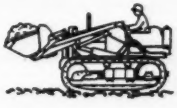
The International TD-18 Diesel Crawler, below, with matched bulldozer, clears stumps from land for a Seattle suburb. Its owner, W. H. Kamp of Des Moines, Washington, has worked this tractor for 4½ years without any trouble or repairs. It puts in seven day weeks of 24-hour days at long stretches. It has built as much as 7,000 feet of streets in twenty days, including opening and clearing land during extremely wet conditions, removing rocks as large as five tons and stumps of 10-ft. diameter. "The tractor is just as true today as a new machine," he says, "not sprung in the least and has never been off the tracks!" Quite a record for more than 10,000 hours of operation!

INTERNATIONAL HARVESTER

INTERNATIONAL
INDUSTRIAL POWER







New UNIT 1520
Self-Propelled RUBBER-TIRED CRANE

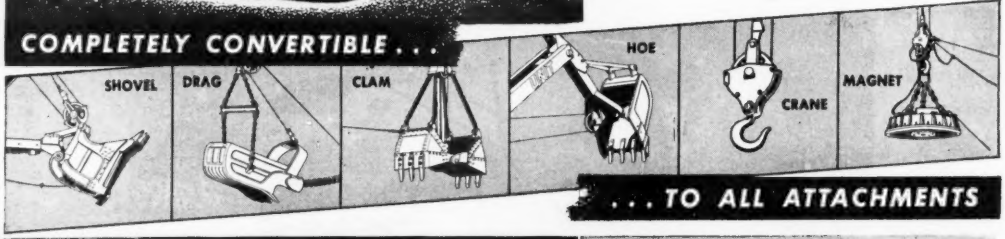
15 TON CAPACITY

This 50,000 pound Mobile Crane is a completely new member of the UNIT Crane and Shovel line. Designed for both "on and off" highway operation. So compact, it works efficiently even in small, cramped quarters, "in or out" of the yard.

- Rugged . . . Perfectly Balanced
- Hook Roller Construction
- Controlled and Operated by ONE Man
- Powered by ONE Engine
- Hydraulic Steering . . . Air Brakes and 4 Speed Air-Actuated Transmission
- Heavy Duty, yet operated with remarkable SPEED . . . SAFETY . . . ACCURACY . . . ECONOMY!

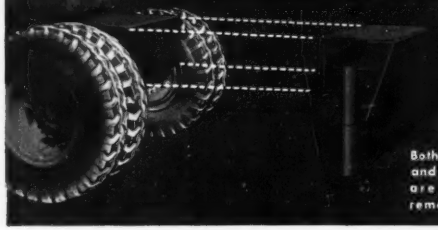
UNIT CRANE & SHOVEL CORP.
6305 W. BURNHAM STREET
MILWAUKEE 14, WISCONSIN, U. S. A.

COMPLETELY CONVERTIBLE . . .



. . . TO ALL ATTACHMENTS

REMOVABLE BUMPERS



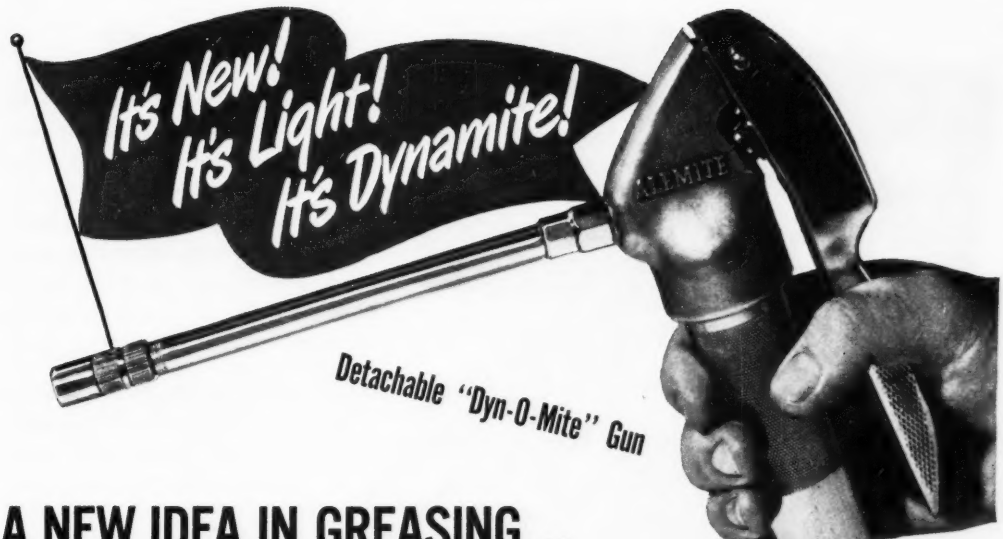
Both the UNIT 1520 and 357 Mobile Crane are equipped with removable bumpers.

UNIT 357 MOBILE CRANE

WITH SHOVEL ATTACHMENT
• Self-Propelled • Rides on Rubber • Has 1001 Uses.

Greater digging efficiency is attained in excavating by removal of one bumper. Permits additional space to lower boom, thus increasing digging depth in trenching or other excavating jobs. Provides close-range operation on shovel work. Bumper is bolted to undercarriage frame and its removal is a simple operation.

SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS



A NEW IDEA IN GREASING...

Volume delivery *plus* 10,000 pounds pressure *with one hand!*

Never before has any portable greasing outfit offered you so many important advantages! You cut greasing time and labor in half with this rugged new Alemite all-pressure unit that's light and easily carried anywhere on the job.

"Dyn-O-Mite" Gun *alone* greases up to 55 bearings without reloading. Weighs only 2 lbs. yet gives pressures up to 10,000 lbs. with new-type, push-handle action. Makes overhead and out-of-the-way fittings easy to reach *with whatever pressure you need.*

"Red-A" Bucket *alone* gives fast volume delivery of grease with easy, one-hand pump action. Delivers up to 3,500 lbs. pressure. Flexible 6-ft. pressure hose couples directly to fittings, withstands 10,000 lbs. of pressure. Hose assemblies available for all types of fittings.

"Red-A" Bucket and "Dyn-O-Mite" Gun *used in combination* give you a quick choice of either high pressure or volume delivery. The gun is quickly attached to the hose and you pump either the Bucket or the Gun, depending on how much pressure you need.

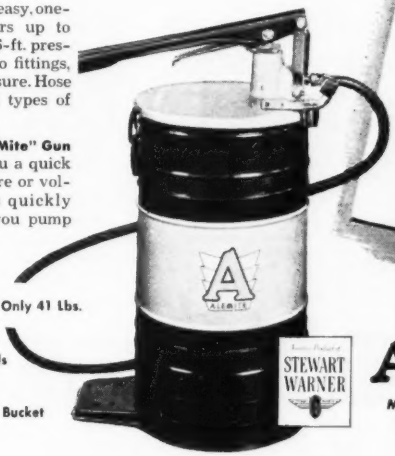
Write today for full details, plus a *free* copy of our informative booklet, "*Correct Lubrication in the Construction Industry,*" which gives you valuable facts on the proper selection, handling, and application of lubricants for a wide variety of construction machinery. Alemite, 1840 Diversey Parkway, Chicago 14, Illinois.

★ Light, Flexible Hose Couples to Gun or Directly to Grease Fittings.

★ Long, Thin Extension Reaches Deep-Seated Bearings!

★ Easy, One-Hand Push Operation— No Strain, No Fatigue!

★ Greases as Many as 55 Bearings— Without Reloading!



★ Lightweight Bucket Weighs Only 41 Lbs. When Full!

★ Oval-Shaped Container Holds 27 Lbs. of Grease!

★ Off-Set Pump Handle Keeps Bucket from Tipping!

ALEMITE

MODERN LUBRICATION METHODS THAT CUT PRODUCTION COSTS

for BIG loads at LOW cost!

Here's the work tire that's unequaled for rolling yardage — on schedule at rock-bottom cost. Notice the large diamond pattern — it distributes the load evenly, carries maximum loads over all kinds of terrain. This Goodyear-designed tread reduces cutting and snagging — gives maximum flotation in soft going, and economical wear on firm-surface roads.

That's why Earth Mover All-Weather tires — like *all* Goodyear work tires — are first choice with users everywhere. They stay first choice year after year, because they keep delivering low-cost, long-life performance. Remember, always BUY and SPECIFY Goodyear—it pays! ●

A right tire for each job!

EARTH MOVER ALL-WEATHER
for drawn vehicles and general traction

EARTH MOVER SURE-GRIP
for maximum traction on drive wheels

HARD ROCK LUG
for super-stamina in all rock work

All-Weather, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company

GOODYEAR

MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND

Construction Methods

Volume 31 JUNE, 1949 Number 6

CUTS AND FILLS

CONSTRUCTION is still going strong, according to contract award figures for the first five months of the year. Contract lettings so far in 1949 (excluding single-family residences) total 17 percent ahead of the same period last year, with private work up 19 percent and public works up 15 percent. The last figure includes a federal government decline of 3 percent, showing state and municipal construction is doing remarkably well, despite a considerable drop in waterworks and highways.

HIGHWAY AWARDS are disappointing so far. In the West the severe blizzards and subsequent flooding cut into highway funds and delayed the programs. Elsewhere some states simply can't seem to get going for one reason or another; others are holding off expecting lower prices. Lettings are increasing however, and the highway picture should brighten during the summer.

PUMP PRIMING TALK is cropping up again around Washington—on the "if" basis—if unemployment should rise to 4,500,000 from the current 3,016,000. Another PWA program is rumored—foolish talk at present, because if state and municipal agencies get the idea some free money is in the offing, they'll hold back present programs and thus accelerate a decline. PWA talk could be a brake on current construction.

CLOSE BIDS are nothing new, but seldom do they approach the irreducible minimum in spread reported by Orville Crowley, A. G. C. secretary at Des Moines. Hilding Ekdahl was low on a $53,000 job until a recap showed Ira Van Buskirk & Sons was $14.66 lower. Swede Ekdahl gets many a tough break. We remember on the Alcan Highway when he got all excited over finding a gold nugget some one had deliberately dropped in front of him. His frantic cries of "Bring the 'dozers" almost started a new Alaskan gold rush.

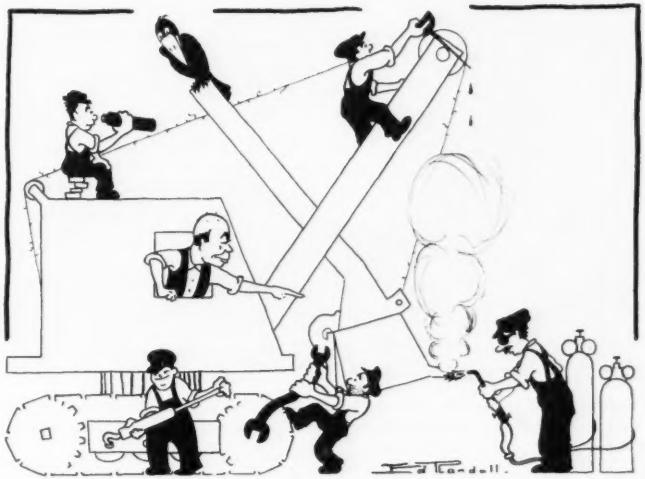
OOPS, SORRY! Seems that we made a couple of bulls in our story last month on "Clever Tricks Pay Off on Concrete Sludge Tanks." Nothing too serious, but we're glad to make these corrections: Irvington Form & Tank Corp., New York City, advises us that the big steel forms were not entirely designed and built by the contractor as stated, for Atlas Standard Speed Forms were used. Checking with the contractor, he says he used Atlas panels as a base, added the trusses and devised the system of erecting the forms in sections to expedite the work. There now, everybody gets due credit. Also, Construction Machinery Sales Co., Waterloo, Iowa, report the cement coating on the outside of the tanks was Jetcrete, not Gunite, as the article stated.

WHILE in an apologetic mood, we'll cite one more correction due the May issue. In the Clark Hill Dam story we stated "As on all Corps of Engineers projects, sand to meet specifications must be made from crushed rock." The Engineers protest the statement is misleading as "We use natural sand whenever possible." Maybe so, but most big Corps of Engineers jobs we know of are using manufactured sand, and this procedure will probably be necessary as long as they stick to accelerated freezing and thawing tests for aggregate.

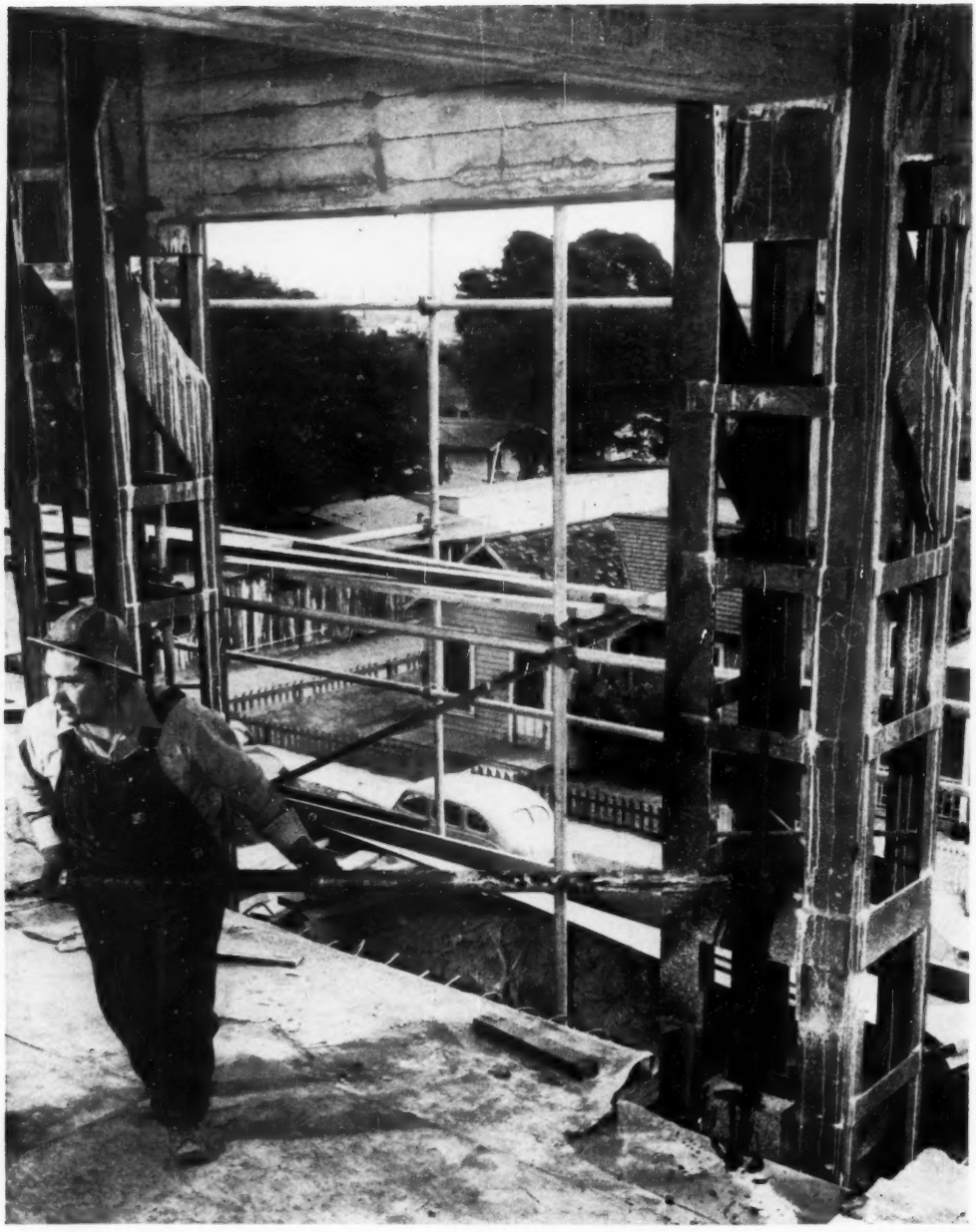
REPRINTS OF Job Office Procedure

IN RESPONSE TO requests from our readers, the series of three articles "It Pays to Organize Your Office—Contractor's Job Office Procedure" has been reprinted in limited quantity. These articles were taken from an employee's manual compiled by Johnson, Drake & Piper, Inc., Minneapolis contractors. They have no copies of the manual available for outside distribution, so if you want one or more copies of this useful document, order them from the editor of Construction Methods at the following prices, postage prepaid:

Single copies (up to 25) each	$0.25
Lots of 25 copies to one address	5.00
Lots of 50 copies to one address	8.50
Lots of 100 copies to one address	15.00

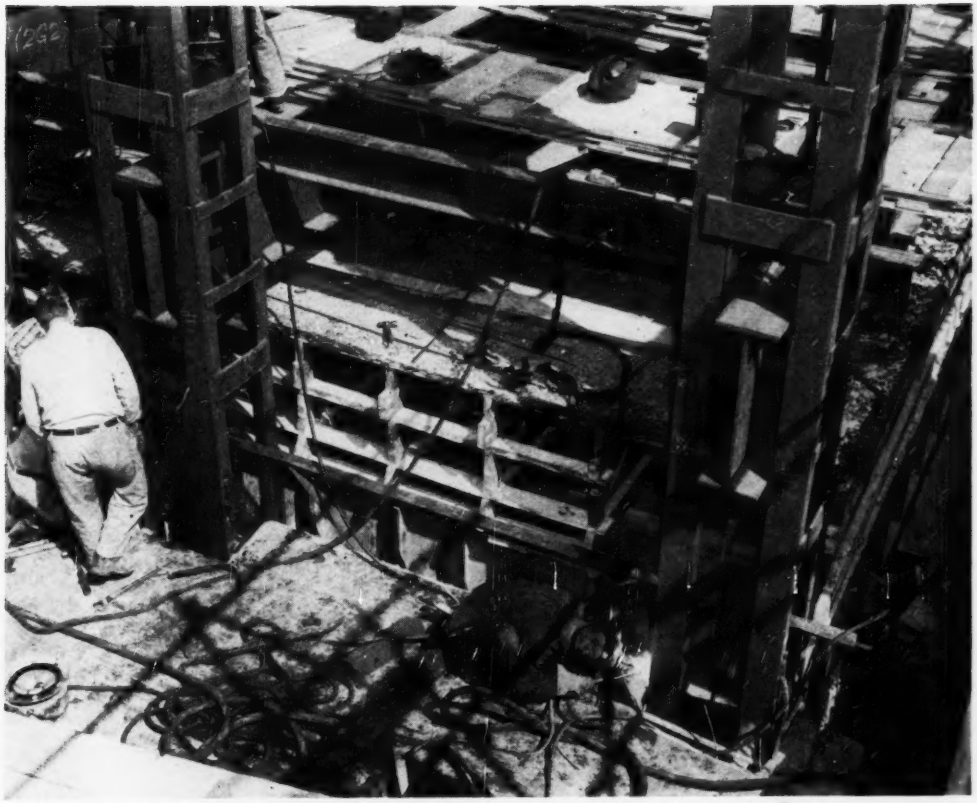


Spike Sez: Get going, you guys. We gotta get this rig in shape to lead the parade for Construction Methods' "Keep 'em Rolling" big special issue in July on construction equipment maintenance. That number will show us how we could have done this job better and will give us lots more dope on maintenance besides. No construction man can afford to miss it.



HEAVE HO! Husky workman, standing on floor he is lowering, turns nut with 6-ft. wrench in unison with rest of crew according to whistle signals. Each half-turn of wrench lowered the floor 1/24 in.; whole jacking job took only two days. (Also see front cover).

New Building Floor Lowered to Place by Jacking



COMPLETION of steel erection on new West Los Angeles telephone exchange finds second-floor beams temporarily resting on brackets in open columns. Plywood incasement and old roof trusses are visible below floor level. Later, this floor steel and concrete slab were lowered 5½ ft. to final position to plane occupied here by old roof by clever jacking procedure.

The Job

To build a new two- and three-story steel and concrete building around and completely incasing an old one-story brick and wood-truss roof structure housing the Associated Telephone Company's West Los Angeles central branch telephone exchange without interruption of service and with protection of the delicate equipment from water, dust, noise and debris.

The Solution

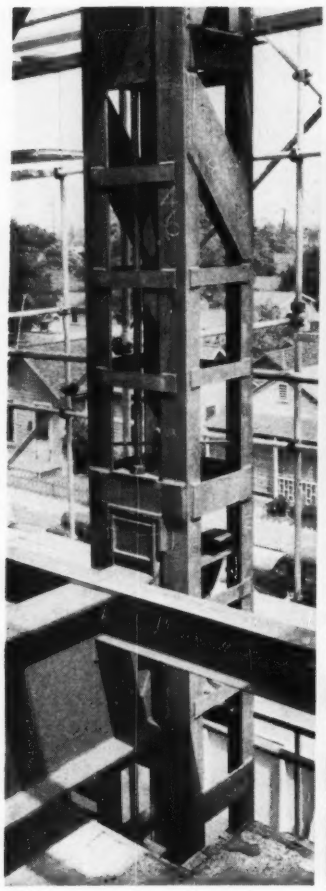
1. Incase the equipment and operation in a dust-proof box of plywood and Sisalkraft
2. Support the old trussed roof on inside pipe scaffolds for weather protection
3. Tear down brick bearing walls of old building
4. Erect steel framing and build roof of new structure
5. Build new second floor supported on temporary column brackets 5½ ft. above final location
6. Tear out original roof
7. Lower new floor to place
8. Complete new building
9. Remove protective interior box

How It Was Done

Maurice Sasso, Los Angeles consulting engineer, worked out the scheme and proceeded in the face of dire predictions by the insurance companies as to success. They claimed the plan impractical, and even if it did work, the cost would be prohibitive. But with the cooperation of the general contractor, Bayer and Abrahamson, the steel erector, Central Steel Construction Co., and the Lincoln Electric Co. on welding, the job proved highly successful.

The original one-story building of brick bearing walls and wood roof supported on timber trusses was in bad shape, incapable of withstanding seismic action of medium intensity. Yet the telephone equipment it housed could not be moved or service interrupted, and must be protected from dust, debris, water and noise.

Therefore the first step was to incase the equipment



JACK RODS were suspended by nuts on top of temporary brackets welded to columns. Lower end of rod hooked onto floorbeam through welded yoke. This view was taken prior to placement of floor slab.

WOOD BLOCKING built up from below and removed piece by piece during jacking operations was safety precaution against beam dropping in case of thread or rod failure.

in a big dust-proof box. Plywood sidewalls were erected against the inside of the brick walls, with all joints sealed with Scotch tape. The box roof consisted of plywood sheeting and two layers of Sisalkraft paper. The old building roof had to be left in place as structural protection, even though it was in the same place as the second floor of the new structure.

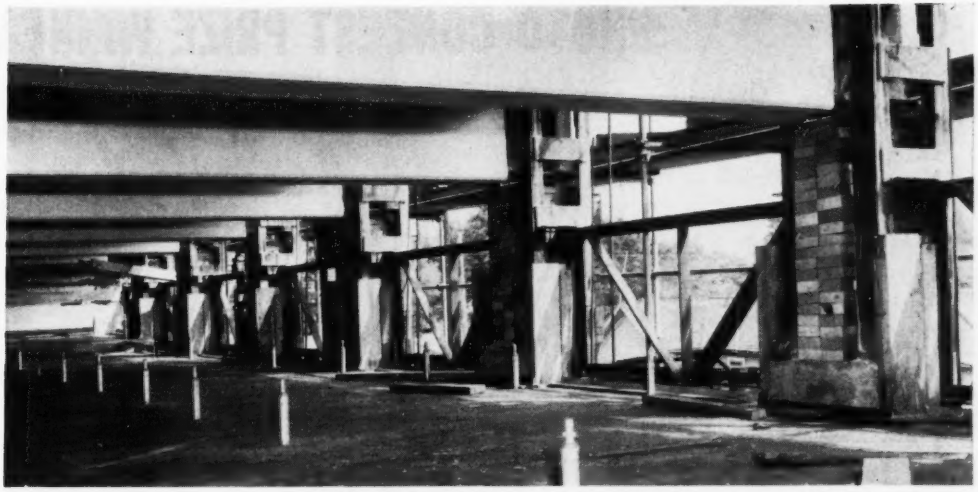
A system of pipe scaffolding was built up around the telephone equipment temporarily to support the old roof. Then the outside brick walls were demolished to make way for the new structure columns and walls.

The new structure, of two and three stories, is all-welded rigid-frame steel bents, with full-span steel floorbeams carried on open angle-iron columns. Floors are reinforced concrete. Columns and roof were built first, along with the third-floor slab.

Next, the second-floor 30-in. beams were temporarily fastened to welded brackets on the columns 5 ft. 5 in. above final position. Then the floor slab and beam fireproofing were placed, completing the floor structure. The old roof served as a convenient working platform for this part of the job, then was removed to make way for the new floor.

Here comes the clever trick! A threaded 1½-in. rod was hung from a temporary bracket in each column extending from above down through welded yokes on the ends of each floor beam, a total of 18 jacking rods in all. A heavy nut was run down against each beam bracket, and the beams were cut loose, leaving the 212-ton floor suspended by the 18 rods. This jacking system resembled a slip-form jack-rod arrangement in reverse.

The floor was lowered evenly by workmen with 6-ft. wrenches stationed at each column and standing on the floor within the building, acting in unison with whistle signals. Each half-turn of the nuts



NICE FLOOR, but not in the right place. View from below at start of jacking, showing safety blocking at each column. Tops of inside scaffolding supporting old roof stick up through roof. This roof was removed before floor was lowered.

CONSULTING ENGINEER MAURICE SASSO figured out plan of jacking new floor to place and had courage to proceed in face of skeptics.

lowered the floor 1/24 in. In two days the floor reached its final position without mishap. Then the permanent brackets were welded to the column and beams, and the jacking system was removed.

No chances were taken during the jacking operations. Blocking of 2-in. and 1-in. wood blocks was built up under each beam end, removed piece by piece as the floor descended. Thus, in case of a thread stripping or failure of a rod, the beam end couldn't drop more than 1 in.

There wasn't a single complaint from any of the 180 telephone operators all through the operations. A clever job well done!

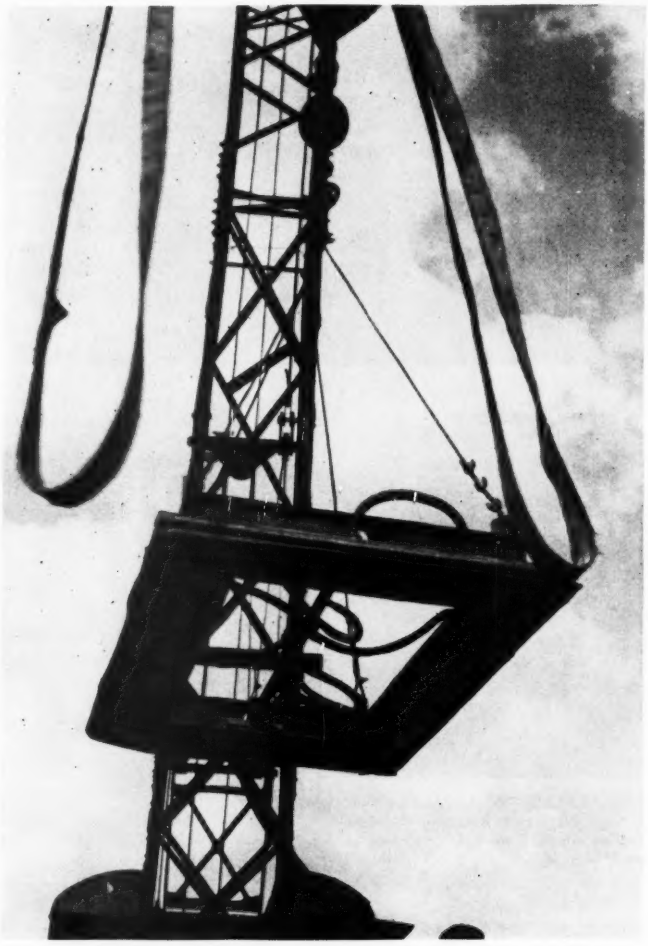
PROGRESS OF FLOOR was carefully checked at each column during lowering operations. Scales in 1/2-in. graduations were chalked on outside of columns.

PHOTO CONTEST PRIZE WINNERS

FIRST PRIZE ——→

Vacuum Pad Slab Lifter

FIRST PRIZE in the "Construction Methods" monthly Picture Contest goes to an alert construction safety inspector for the New York State Department of Labor—FRANCIS H. QUINN of 188-04 64th Ave., Fresh Meadows, Flushing, L. I., N. Y. Quinn snapped this dramatic shot of a Vacuum Concrete, Inc., slab-lifting pad, with safety slings flying in the wind, on George A. Fuller Co.'s Parkway Village housing project in Queens, New York City. Pad lifts precast floor panels out of their forms; safety slings, handled by second drum on crane hoist, are looped around corners of slabs while lifting—just in case of failure in vacuum line.



HERE ARE THE WINNERS of the first monthly Picture Contest. Prize checks for $25, $15 and $10 have been mailed to the three winners. Honorable mention recipients got $5 each.

The contest continues each month, so if you didn't win this time, don't be discouraged—keep trying. The rules are simple: Submit as many pictures as you wish of spectacular construction scenes, new and ingenious gadgets, clever application of equipment —anything pertaining to construction operations. The only restriction is that all photos must relate to construction operations, so shots of completed projects will not be considered. Large prints 4x5 and 8x10 are preferable.

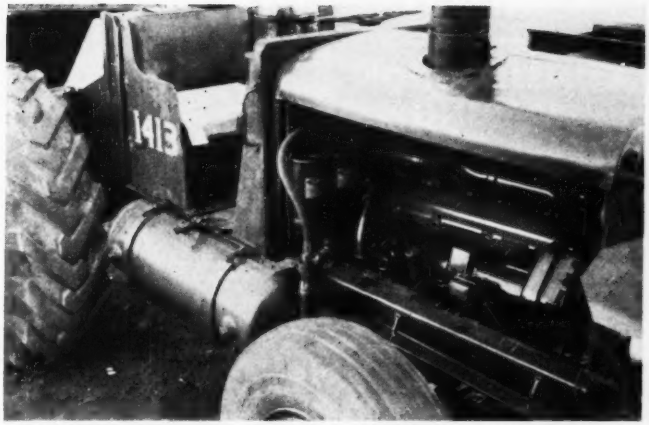
Pictures received during any calendar months are automatically entered in the contest of the second following month. Thus, photos received up to July 1st will enter the August contest. Send all entries to: Picture Contest Editor, *Construction Methods*, 330 W. 42nd St., New York 18, N. Y.

FOR JUNE

SECOND PRIZE →

Air Starter for Euclid Tractors

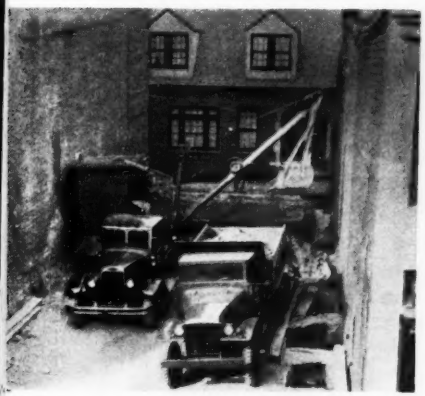
THIS SHOT of a job-made air starter and receiver for a Euclid Model 43FDT tractor rates second prize this month for GLENN VOEGELEIN, project engineer for Lytle-Amis-Green on the Bureau of Reclamation's Potholes Dam project at Moses Lake, Wash. Compressed air stored in receiver starts diesel engine. Simple, isn't it?



THIRD PRIZE →

Safety Prop for Dump Trucks

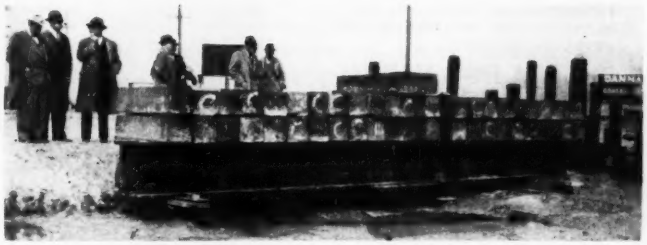
JUST A SIMPLE safety gadget, but it rates a prize for GEORGE W. BROWN, 1206 N. 6th St., Albuquerque, N. M., safety engineer for Albuquerque District, U. S. Corps of Engineers. As you can see, it's simply a pipe strut hinged to bed frame of truck, lifted to blocking position when anyone is working around raised dump-body. A good idea for every dump truck.



HONORABLE MENTION

A Tight Squeeze

CLOSE WORKING QUARTERS for a Quickway Model E truck-mounted backhoe is depicted by this shot of excavating an East Orange, N. J., basement, submitted by CHUCK HARDING, vice-president of Griswold Contracting Co., R. D. 6, Caldwell, N. J. Chuck says his machines "are seen on more tough jobs than good ones." On this job he said he had 2-in. clearance behind cab.



HONORABLE MENTION

Fabricated Pile Tester

A PAIR of H-beams, fabricated into a box-section over a center plate fitting over test pile was devised by H. Johnson & Son, contractor on Arverne Houses, Queens, New York City. RALPH MANN, engineer for American Wood Preservers Association, 60 E. 42 St., New York 17, N. Y., rates honorable mention this month for this shot of the arrangement, shown here supporting 50 tons of pig iron in testing one of 2,900 creosoted wood piles driven for project. Ralph says this treated pile sank only 0.039 ft. under test load, then rebounded 0.03 ft. when load was removed, showing everything was hunky dory.

Continued on next page

A Real "LIFT" for All CONSTRUCTION JACKING

SIMPLEX

Ratchet Lowering

JACKS

Don't let poor jacking slow you up on the job! Choose a Simplex Ratchet Lowering Jack for faster, safer action on *all* lifting, lowering, pushing or pulling jobs. Depend on Simplex for rugged construction that means lasting service...for *safe* jacking power to help you get the work done with speed and efficiency.

CHECK THESE FEATURES!

- **Load raised or lowered notch by notch — Jack cannot be tripped.**
- **New adjustable mechanism — cadmium plated springs.**
- **Shorter fulcrum centers — easier operation.**

There's a complete line of Simplex Ratchet Lowering Jacks to meet every construction jacking need; capacities from 1½ to 35 tons. All models safety tested to 100% over rated load—all lift full capacity on *cap* or *toe*.

Other Simplex Jacks for construction work include SCREW JACKS, HYDRAULIC JACKS and JENNYS, PUSH and PULL JACKS, SHORING JACKS, TRENCH and TIMBER BRACES.

Send for General Catalog

Simplex LEVER · SCREW · HYDRAULIC Jacks

1899 50 Years 1949

TEMPLETON, KENLY & CO.
1008 South Central Avenue
Chicago 44, Illinois

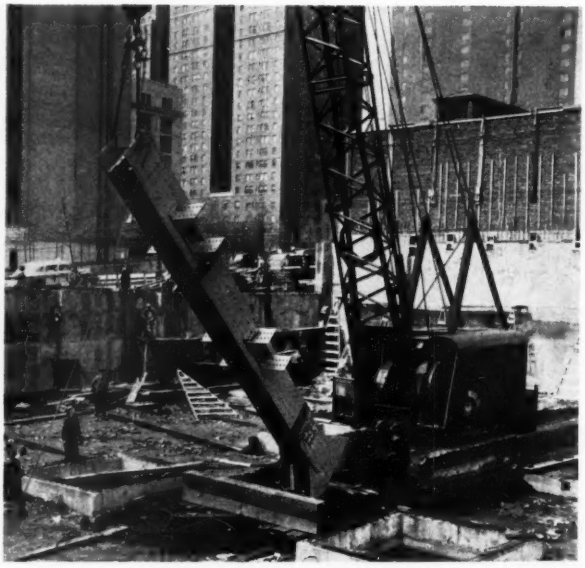
PHOTO CONTEST... Continued

HONORABLE MENTION

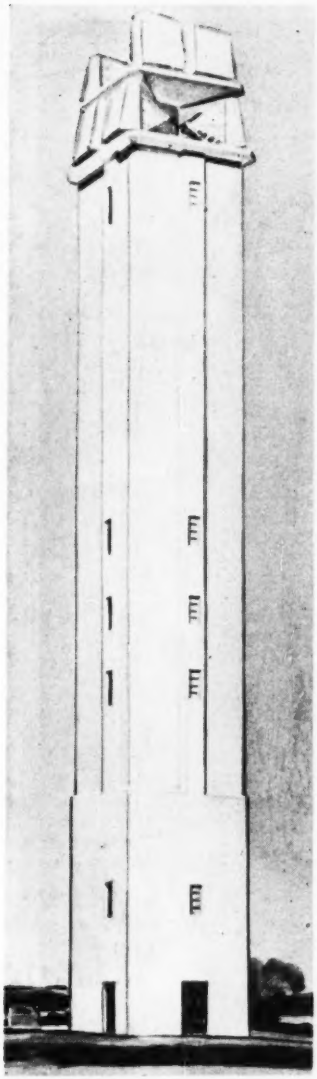
Let's Go Home!

RIGGING CREW of E. T. Gresham Co., Inc., Norfolk, Va., gathers up its paraphernalia after successfully moving and unloading 45-ton transformer at Buggs Island Dam on Roanoke River, Virginia. This view was taken by ELWOOD H. INGE, assistant to resident engineer, U. S. Corps of Engineers, Norfolk District, just after big load was skidded off low-bed trailer on rails to temporary storage on cribbing.

Foundation for World Peace



THIS IS FAR MORE than a heavy column being set in place—it is the start of the physical framework for World Peace hoped to be established by United Nations. This 16-ton column is the first steel going into the Secretariat Building at U.N. permanent headquarters in New York City. American Bridge Co. is furnishing and erecting the 13,000 tons of steel in the 42-story building as subcontractor for Fuller-Turner-Walsh-Slattery, Inc., general contractors for the project.—Acme Photo



Nice Job for Slip Forms

CONCRETE TOWERS from 100 to 200 ft. or more in height will be built across the nation by American Telephone & Telegraph Co. as part of its television network. First contract for the unique structures, to be built with sliding forms similar to grain elevator construction, has been let to National Concrete Fireproofing Co., Cleveland, for 20 towers throughout Ohio and Indiana on the New York-Cincinnati-Chicago circuit.

Only time can tell—

THE STRONGEST PART OF A BRIDGE IS IT'S WEAKEST POINT!

All great masterpieces will deteriorate in time

Your masonry problems may be difficult and seemingly hard to solve, but there is a way. Thirty-five years of successful solving of masonry problems for contractors and builders, both large and small, have placed The THORO System and methods of correction in the minds and hands of over 25,000 contractors.

You can't go wrong by recommending this Dry Wall System in all your masonry problems. The THORO System and products for protection of masonry structures have been perfected by people who are themselves experienced, specializing in this field. Put your problems up to us. Order through Lumber or Builders' Supply Dealers.

Get our 20-page brochure, pictorially describing, in detail, "How To Do It." It's yours for the asking—No. 142.

Standard Dry Wall Products
BOX X, NEW EAGLE, PENNA.

Cutting blades clamped to square shafts act as rotary wideners as . . .

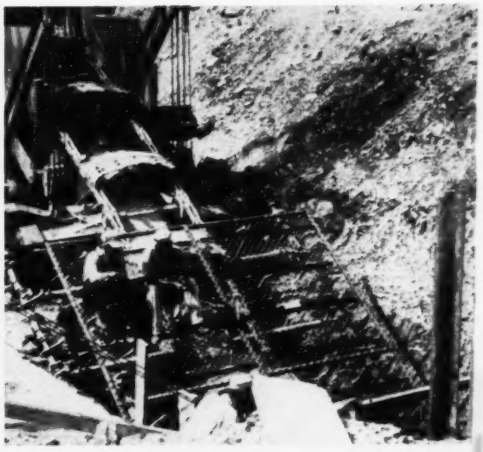
Biggest Ditcher Digs Houston Sewer

IN WHAT IS PERHAPS the largest trench ever cut by a ditching machine—a slot 13 ft. 4 in. wide, 23 ft. deep—Thos. Bate & Sons recently completed a sweet storm sewer job for their home city of Houston, Tex. It's no accident that the work went well. For Bob Lee, Houston's storm sewer design engineer, kept contractors' problems in mind when he planned it. And Bate added some clever wrinkles when they built it.

The job? A 4,475-ft., $790,000 reinforced concrete outfall section of the Dowling Area storm sewer in southeast Houston. It empties into Bray's Bayou, which joins the ship channel to the Gulf.

The sewer section is rectangular, 13x17½ ft. over-all, with upper walls and roof 12 in. thick. The invert is rounded to a 5-ft. radius semi-circle, and minimum base

1 . . . LOWER END of ditcher boom carries cage-like cutting wheel that excavates bottom corners of 23-ft. deep trench and forces material to bucket line for removal.



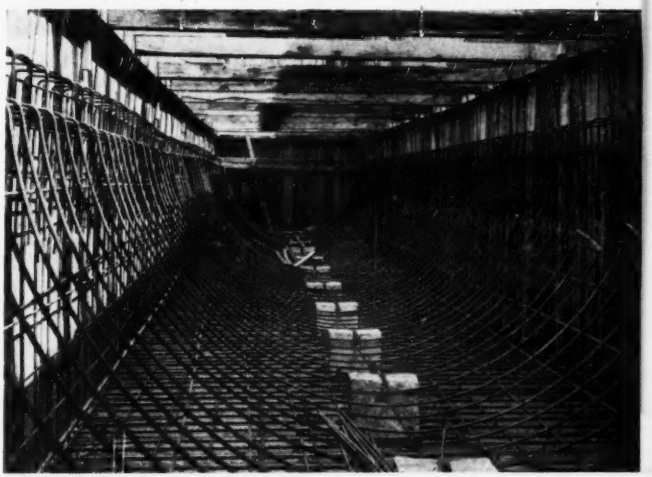
2 . . . SAFETY COVER, of steel link fencing on welded pipe frame fastened to ditcher boom, serves as platform from which temporary trench bracing is installed as machine advances.

thickness (along the centerline) is 15 in.

As the job was in good clay, Bate decided to excavate with a trencher. They got the biggest rig they could find—a ladder-type Buckeye 224 with one pair of rotary wideners—but they had to make this mammoth machine even larger. A second set of rotaries was added, outboard of the originals, to make a total 13-ft. 4-in. cut (sewer width plus 2 in. on each side for sheeting). The new cutters are chain-driven by sprocket extensions to the regular rotary-widener shafts, so the original gear box was replaced by a heavier one to carry this additional load. At the tip of the ditcher boom, extension shafts were added to each side of the tail wheel of the bucket line. Each rotating shaft carries two toothed blades to trim the bottom of the cut, and two pairs of screw blades to kick spoil to the buckets.

Dragline Cuts Pilot Trench

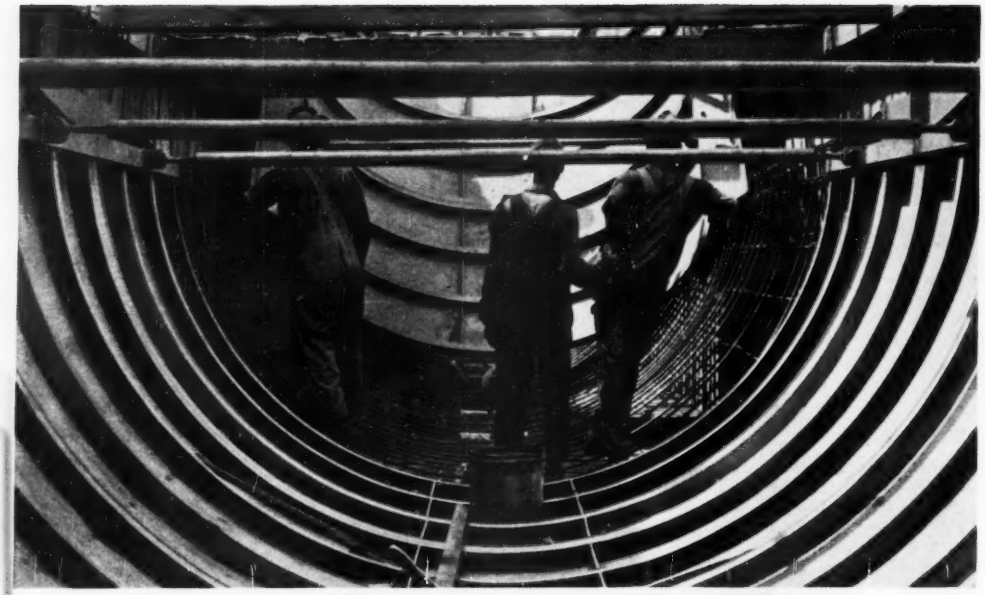
The base of the sewer was 25 to 31 ft. below the existing surface grade. As the trencher could cut only to 23 ft., it was preceded by a Lima Paymaster dragline that excavated the top 2 to 8 ft. The dragline cut was made 30 ft. wide so that dump trucks carrying spoil from the ditcher had plenty of room to haul around and discharge their loads for backfill on the sewer as it was completed.



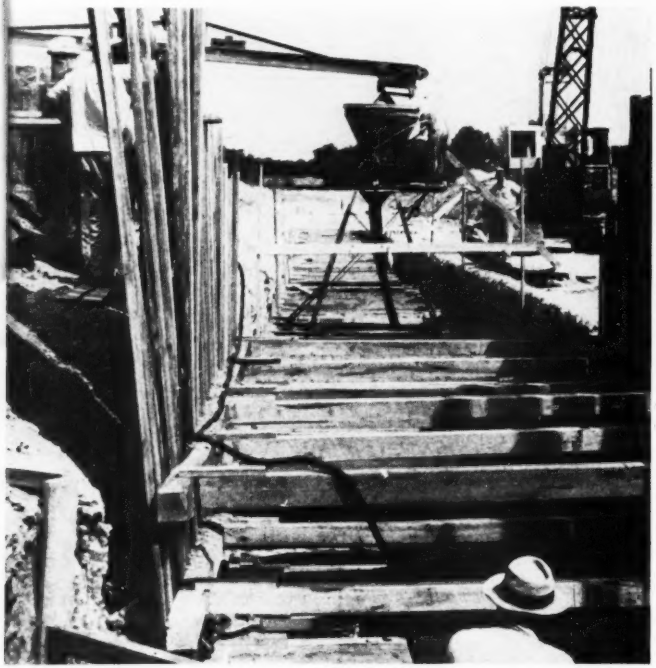
3 . . . INVERT STEEL is held in place by precast concrete blocks that also support steel forms. Note cleanliness and lack of interference of trench bracing system.

The trench was sheeted immediately behind the ditcher as it advanced. Temporary stub braces were installed over the inclined trencher boom, then replaced by the permanent sheeting when the full trench depth was clear. The system was simple: Full-length vertical 2-in. planking braced by two levels of 6x6- or 8x8-in. rangers and transverse struts on 6-ft. centers. The sewer was poured in two lifts (7-ft. invert pour, then 10½ ft. of upper walls and roof) so the bracing was placed 9 and 19 ft. above the base to minimize interference with concreting operations.

With trench dug and sheeted, a 3-in. unreinforced concrete seal slab was poured to give a good working base. Placing of invert reinforcing steel and forms followed. Forms were steel, semicircular and unhinged, with screw jacks across the diameter to brace them during pouring and to spring them in for stripping. Precast concrete blocks



4 . . . STEEL FORM SECTION is lowered to place for first invert pour; will be permanently bolted to previous sections to make 50-ft. form. Pipesleeve turnbuckles, or screw jacks, spring top out and in to adjust or strip form.



5 . . . CONCRETE FROM PAVER is dumped to funnel by hand-controlled bucket and is hosed to forms. High-slump (6-in.) concrete with round aggregate flows easily through 6-in. hose.

on the seal slab held the forms at the correct elevation; blocking to the trench braces above kept them from floating as concrete was poured.

Concrete was mixed in a single-drum Multifoote 34E paver operating alongside the trench, and flowed through funnel and 6-in. rubber hose into the space between sheeting and forms. Pours were generally 50 ft. long. When the concrete had set, the forms were stripped and moved to the next pour by jacking up the rear end on to a rolling carriage, then pulling the assembly ahead.

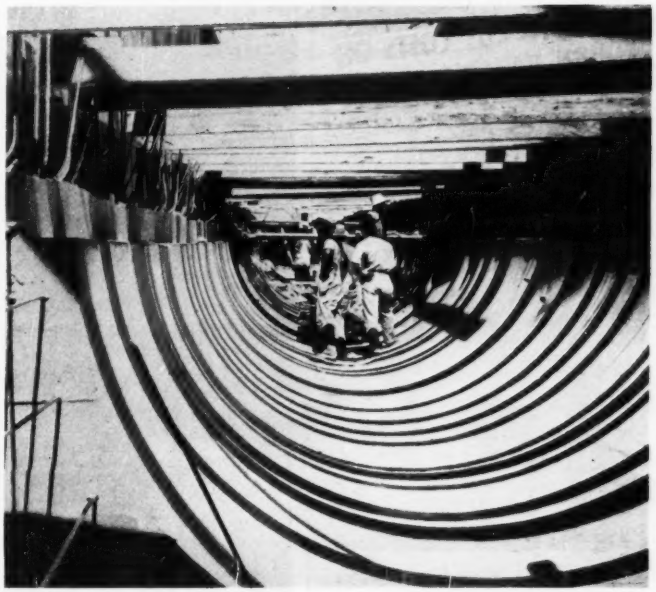
Design Aids Construction

The upper pour followed close behind the invert pour. And here is where Lee's design really paid off. He'd made the invert section strong and heavy enough to support the trench sheeting by itself after the concrete reached a 1,000-psi. strength. Thus, the lower line of bracing could be removed within three days, and there was nothing to interfere with the reinforcing or forms for the walls and roof. In addition, along each side just below the top of the invert pour, he left a 6-in. shelf as a support

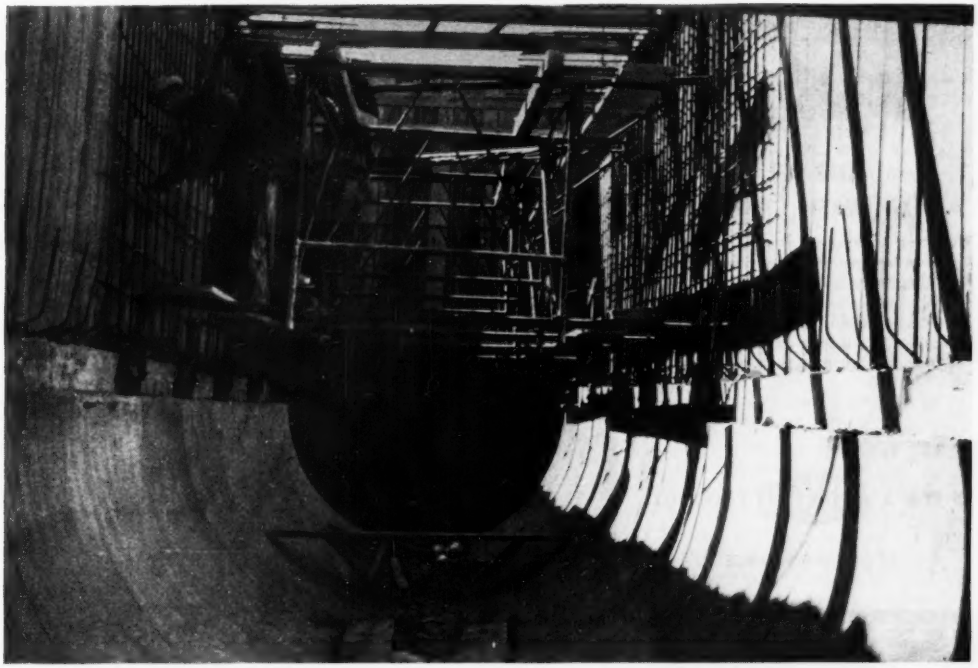
for the upper wall forms so inserts and bolts were unnecessary. Bate found the shelf useful also as a track for a wheeled jumbo from which reinforcing steel was placed. Seldom does a contractor run into such cooperation from the designer. This job is an excellent example of how such cooperation pays off.

Paver Pours Walls and Roof

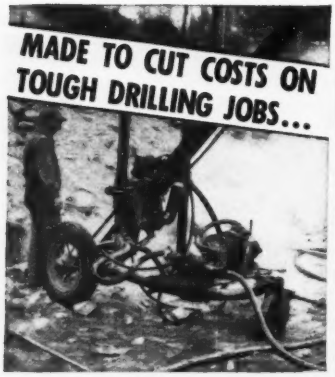
Upper walls and roof were poured with the same paver and rubber hose set-up used on the invert. Concrete was placed directly against trench sheeting and behind steel forms that were hinged along the sewer centerline for stripping. Forms were handled by a jumbo riding rails on the sewer invert. A jack at each end of the jumbo raised a sliding pipe frame to engage the form center joint; a ratchet lever hoist operated a link arrangement to swing pendulum arms to each side to pick up the forms' trussed bracing. With the form supported by the jumbo, blocking was removed and the form was collapsed by slacking the jacks and hoist. It was then a sim-



6 . . . INVERT FORMS are stripped and, with rear end on wheeled dolly, are pulled ahead for next pour. Note heavy invert section that allows lower line of trench bracing to be removed when concrete attains 1,000-psi strength.



7 . . . WITH LOWER BRACING REMOVED, steel-setting for walls proceeds without interference. Scaffolding jumbo rides setback in invert pour.



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AIR HAMMER COUPLING

Ground joint construction—no worn or mislaid washers to replace. Built for heavy duty and hard wear. Furnished with strong "Boss" Interlocking Clamp. Large wing nut facilitates connecting and disconnecting. Compact and heavy types. Cadmium plated—rustproof. For washer style, specify "Boss" Air Hammer Couplings.

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AIR HAMMER COUPLING

Washer style. Efficient, durable, inexpensive. Steel stem has deep, smoothly finished corrugations. Rugged malleable iron clamp has dual gripping ridges on inner surface. Compact and heavy types. Cadmium plated—rustproof. Also available in ground joint construction—specify "GJ-Dixon" Air Hammer Couplings.

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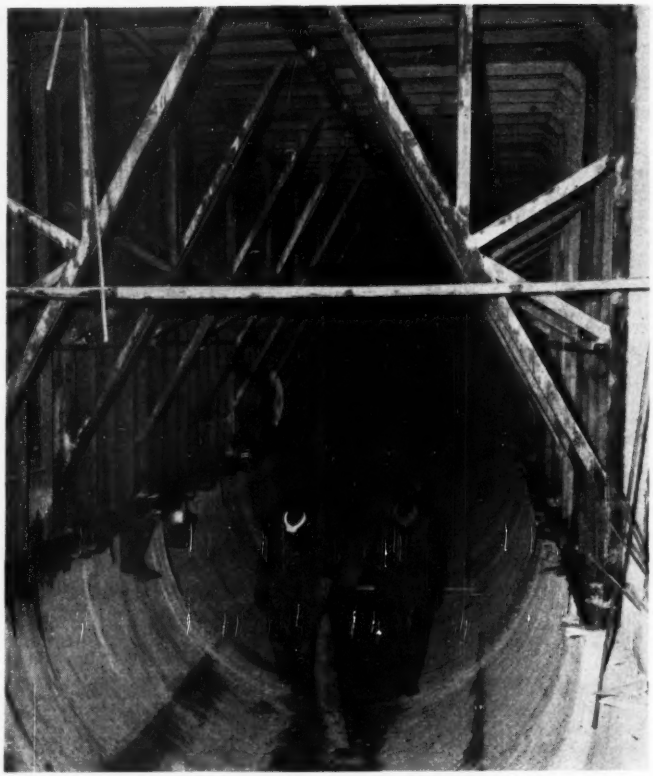
HOUSTON SEWER . . . Continued



8 . . . WALL AND ROOF FORMS of steel are self-braced by welded trusses. With simple support on invert shelf and with hinge along centerline of roof, stripping is easy.

9 . . . FORM-HANDLING JUMBO is here shown partly dismantled. With jacks beneath sliding pipe columns (one of which is indicated by O. M. WARD, contractor's superintendent) and with ratchet hoist between staples (*arrows*) cross-bars can be raised or swung out to pick up forms.

ple matter to run it ahead for the next pour.

The combination of neat design and smart construction resulted in a fast job—progress was 40 ft. of sewer per day. It also resulted in a remarkably integrated operation. After the project got rolling, there was little more than 200 ft. of working space between the big ditching machine excavating the trench and the 'dozer compacting backfill over the completed sewer.

Job Personnel

The storm sewer was a municipal project under Jim Nagle, Houston's director of public works. His engineer, Bob Lee, designed it and doubled as resident on its construction. For Thos. Bate & Sons, the contractor, O. M. Ward was job superintendent.

★★★★ **Barber-Greene** ★★★★

B-G COST SAVING BULLETIN No. 4901

63,000 TONS UNLOADED IN 210 DAYS FOR READY-MIX PLANT

"Not an Hour or a Penny for Repairs"

Griffith, Ind.—The Griffith Ready-Mix Company have speeded up and greatly simplified hopper-car unloading operations at their plant here—as shown by their record of unloading over 1,000 cars in 210 days. Their B-G Belt Car Unloader and Portable Conveyor are clearing 5 to 6 cars a day on a 6-day week basis.

Griffith's unloading setup is simple, low in cost and effective. They keep about 60 cars of aggregate on hand, and their 358 Unloader is easily placed over the rails (it works equally well in pits), and, with the 363 Portable Conveyor unloads to a temporary stock pile at a 3-ton-per-minute clip.

Previously, a crane was used for unloading and stockpiling operations. Now it is free for a variety of other tasks around the yard.

Griffith's operators have found that the 358 won't jam up and will start with a full load on the belt. The 363 Conveyor is equally sturdy, capable of operating 24 hours a day—day in and day out—on a 3-ton-per-minute basis.

847550

The Model 358 Car Unloader and 363 Conveyor combine higher standards of performance, higher capacities and more ability to handle all materials than heretofore available in any other loader-conveyor combination.

One Man Unloads 50-Ton Car in Hour to Radial Storage

Richmond, Va.—One-man unloading to radial storage bins has meant real economy to Tiller Coal Company, Inc. The B-G Coal Unloader and Radial Conveyor provide the flexibility required to unload directly into bins or trucks as the occasion demands. "We have found we can exceed everything Barber-Greene said the setup would do," said L. W. Gress, president of the concern.

847198

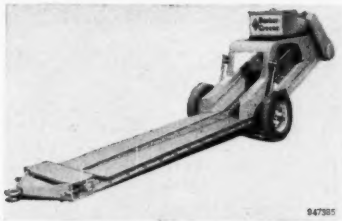
Ship Carries Own Unloaders

Mobile, Ala. **The good ship *Rosario* operated by the Suwanee Steamship Company carries two B-G 363 Portable Conveyors to facilitate loading and unloading cargoes of bulk materials such as sulphur, gypsum, etc. Low initial cost and high capacity of the B-G units account for their seafaring role.**

EFFICIENT CONVEYOR PLAN SAVES 90% OF EQUIPMENT COSTS ON $2½ MILLION BRIDGE JOB

Jacksonville, Fla.—The George D. Auchter Company of this city credits much of the savings that made possible its being the low bidder on a 2½ million dollar bridge contract to its new B-G 363 Conveyor and 358 Unloader.

This job, 30 miles from the city, offered no railroad facilities so it was necessary to barge materials to the site. Loading the barges from hopper cars was a real problem. First consideration was given to equipment that would cost over ten times that of the B-G unloading team until they learned how easily the 358 Unloader and 363 Conveyor could do the job.



947385

Frees Crane for Other Work

New Enterprise, Pa. **A 358 Hopper Car Unloader fitted in neatly with the needs of the New Enterprise Stone & Lime Company. It was purchased for unloading cinders from hopper bottom cars, thereby releasing an expensive crane which had been tied up on this uneconomical service. This highly portable Unloader is also being used to unload coal at one of their large storage yards near Bellwood at the rate of one 70-ton car every 55 minutes.**

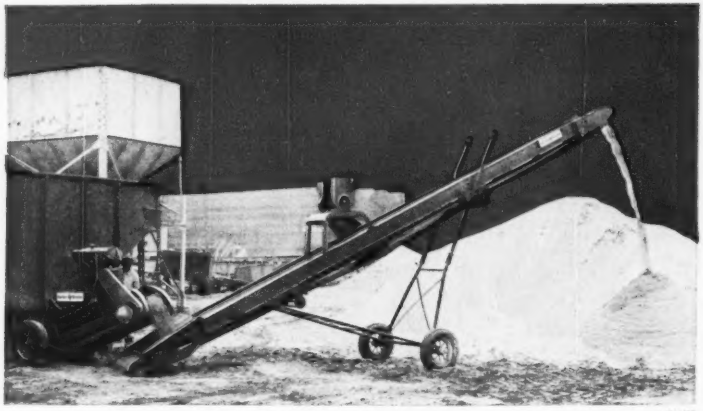
All Materials Handled by B-G Team

The result was that the 358 and 363 unloaded all the materials from cars on the Auchter Company's spur at the riverside. Material was sent directly into the barges through a chute at the discharge end of the 363 Conveyor. This, the company reports, was a high volume, low cost and entirely successful operation which was largely responsible for its being able to secure the contract.

Auchter Company is using the same unloading setup to barge materials for a power plant project located on the river. Mr. Auchter points out that due to the low cost of loading the barges, it is much more economical for his company to supply material to the job site in this manner than to go to the expense of building a railroad spur into the project.

PRTD. IN U.S.A. 155 M 5-49 AM

PORTABLE CONVEYOR UNLOADS 18,350 BARRELS OF BULK CEMENT



548437

4 to 5 Cars per Day

NEGLIGIBLE CEMENT LOSS

In unloading cement from hopper-bottom cars for use on a cement stabilized highway project, the Hyde Construction Company provided one of the most rigorous tests ever confronted by any high-volume unloading equipment. It was a test that was met successfully by the B-G 363 Portable Conveyor which built up a record of 18,350 barrels unloaded—at an average rate of three cars per day. This, in spite of the fact that many were dubious of any such conveyor's ability to handle cement in such quantities. On some days, while the haul was short and the supply of trucks was plentiful, as many as four or five cars were unloaded by this economical, versatile Conveyor.

No unloader was necessary. The hopper end of the 363 was placed in a pit under a tongue-and-groove hopper and fed directly from the car. With a heavy duck cover and canvas spout, there was very little loss of cement in the unloading operations.

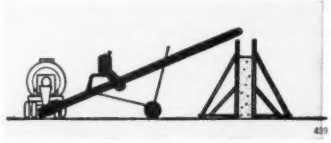
SAVES $30,000 ON TRUCK MIXERS BY USING PORTABLE CONVEYORS

Belleville, Ill.—A skillful combination of a B-G 363 Conveyor with a team of dry batch trucks has enabled the Hoeffken Brothers to maintain a fast-moving, ready-mix concrete business with a minimum of investment.

Hoeffken Brothers operate two ready-mix trucks. These trucks are supplied by six dry batch trucks and their B-G Conveyor. The dry batch trucks are used to enable the more costly ready-mix trucks to cut their haul down to a minimum, thereby increasing their daily capacity to the extent where additional ready-mix trucks are not required.

For one paving job located 15 miles from the Hoeffken Brothers batch plant, materials were delivered to the ready-mix trucks ½ mile from the job by the dry batch trucks. The company reports when the haul exceeded this ½-mile figure, they hooked the 363 Conveyor to the water truck and trailed it down the road to another more desirable location. The Conveyor used is 35′ long with a corrugated sheet metal cover and a large hopper at the charging end. Batch trucks dump a 4-yard dry batch of concrete into the conveyor hopper and in less than 2 minutes a 4-yard ready-mix truck is ready to go. Hoeffken Brothers figure that they have saved in the neighborhood of $30,000 in over-all investment in production equipment.

506



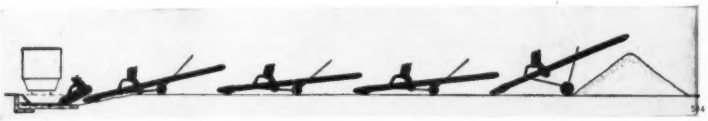
489

Foundry Cuts Coke Unloading Costs 76%

Rockford, Ill.—New, modern unloading equipment has enabled the Greenlee Bros. & Co. foundry to cut costs for unloading a car of coke from $20.00 to $4.80 per car. This substantial saving is accredited to the performance of their 363 Portable Conveyor and 358 Car Unloader—which are quickly paying for themselves in this 100-car-a-year operation.

Additional savings are reported by Greenlee Bros. through the reduction of demurrage charges due to the ability of this unloading-stockpiling "team" to get to work fast and operate steadily at maximum capacity.

Their all-material B-G Unloader and Conveyor are also used to unload fluxstone and foundry sand.



594

Unloader-Loader Team Does Many Jobs for Cement Plant

Charleston, S. C.—Production equipment has to be kept working to pay off to the best advantage and it is on this basis that the Carolina Giant Cement Company keeps its B-G 363 Conveyor and 358 Car Unloader busy as general utility equipment on a variety of jobs all over the plant. First, they are frequently at work stockpiling coal from hopper cars along the company's rail siding. Later, the 363 is used in loading the coal from the stock pile for use in the plant.

Gypsum is brought to the plant in box cars and here the 363 is fed by hand to transfer the gypsum from the box cars to a bucket elevator which carries the material up to silos.

Recently when the plant was being altered, it was necessary to drive piling and build foundations inside of the buildings. When this was done, the 363 was used to transfer dirt through a window to the inside of the building for backfilling around the foundation.

Well pleased with the general usefulness of these production tools, Mr. F. M. Murray, shop superintendent, further adds that at times the 358 Unloader has to operate under the most adverse conditions—often the lower half is in water underneath the rails. As in so many other tough jobs, the 358 gives high capacity, dependable performance even under these unsatisfactory conditions.

"A BEAUTIFUL RIG ON OUR SEWAGE PLANT JOB" says B-G OWNER

147457

Heavy Duty Conveyor Runs Up Total of 80,000 Tons of Stone Handled

Spans Canal in Loading Trucks from Railroad Cars

Worcester, Mass.—80,000 tons of 3¼" crushed stone for this city's new sewage treatment plant were loaded to trucks at a 1000 ton per day rate by a B-G Heavy-Duty Conveyor owned by the V. Barletta Company.

Loading up to 1000 tons per day, the 24" x 60' conveyor spanned a 15-foot canal between trucks and the railroad cars. Mr. Barletta reported that this daily capacity was limited only by the ability of the railroad to supply cars, and could have been much higher if they had been available.

Further, Mr. Barletta states, "This conveyor is a beautiful rig. There is absolutely no comparison with any other method of unloading bulk material from cars to truck or storage."

Barletta's B-G Conveyor has been widely useful in the years since it was purchased. A standard Heavy-Duty Conveyor, it is portable, equipped with full-swiveling wheels for radial stockpiling—one of the full line of B-G Portable Conveyors available in belt width of 18", 24", 30" and 36" in lengths up to 150'—capacities to 400 t.p.h.

Half Million Yards of Stone Moved with Practically No Maintenance

Montgomery, Ill.—Nineteen years ago the Fox Valley Gravel Co. bought a Heavy-Duty Portable B-G Conveyor and put it to work in their quarry. At that time, it was an 18" x 30' Conveyor. Today it is an 18" x 60' Conveyor with a total of 500,000 yards of crushed stone to its credit.

H. C. Leppert states it's an impressive record and backs his opinion with a cost sheet that shows the replacement of only one belt carrier in nineteen years.

This conveyor is equipped with all-welded, plain-bearing belt carriers that are noted for rugged endurance. Typical of all B-G "Portables," it is built up of Standardized Sections and is easily shortened or lengthened as in the case here, where it was lengthened to 60' when the need arose.

County Stockpiles 70,000 Yards with Zero Dollars Spent for Repairs

Geneva, Ill.—The Kane County Highway Department furnishes added evidence of the usefulness and low operating expense of B-G Heavy-Duty Portable Conveyors in a recent report. The conveyor has seen constant service during the winters since 1944—stockpiling 70,000 yards of crushed stone for use in summer highway work—and they have yet to spend a penny for replacement of any part. An 18" by 60' unit, their B-G Conveyor helps materially in promoting low cost highway maintenance.

Have you seen the B-G City?

Here is a novel and interesting color illustration of the imaginary Barber-Greene City, showing almost countless operations in material handling, ditching and bituminous construction.

Write for your free copy.

Peach Pits by the Yard Via Versatile Portable Conveyor

Los Angeles, Cal.—Peach pits, walnut shells, apricot pits and the like are not allowed to go to waste by progressive food industry operators such as the Agrashell Corporation, producers of insecticides, resins and oils. And companies such as this are turning to the B-G Model 363 Portable Conveyor as an ideal means to handle this exotic bulk material in large quantities on a steady, day-in and day-out basis. Here the material is brought to the plant in side-dump gondola cars and fed through a portable hopper to the receiving hopper of the B-G Conveyor. The 363 transports material into the plant for further processing.

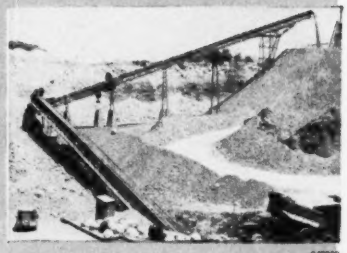
646372

THE B-G LINE CUTS COSTS ALL ALONG THE LINE...

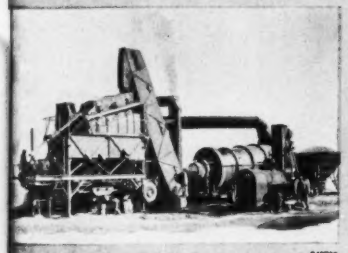
See Barber-Greene for:

B-G BUCKET LOADERS: Crawler or pneumatic-tire mounted. For low cost truck loading of bulk materials. Capacities up to 3 cu. yd. per min.

B-G DITCHERS: Crawler and pneumatic tire mounted, for digging trenches from 5½" wide, 4' deep to 24" wide, 8' 3" deep.



B-G PERMANENT CONVEYORS: Complete, standardized equipment including carriers, take-ups, drives, frames, etc.



B-G BITUMINOUS PLANTS: Highly portable plants for producing all types of mixes—up to 120 T.P.H.

B-G FINISHERS: Automatically place smooth level surface regardless of variations in subgrade.

B-G COAL YARD EQUIPMENT: Belt and chain-and-flight Portable Conveyors; self-propelled, pneumatic-tired. Also, hopper-car Unloaders.

Use Barber-Greene's 30 Years of Experience to Help You Plan Your Job. It can be Valuable and is at Your Service

It always pays to eliminate guess work. Barber-Greene offers you the benefit of over thirty years experience in designing and building equipment proved year after year on jobs—and in industries—like yours. Barber-Greene's Representatives are material handling specialists with practical experience in successfully applying the right machine to jobs like yours. Consult your Barber-Greene Distributors, or write directly to Aurora, Illinois, for information you need to do your job most profitably.

Barber-Greene Company
Aurora, Illinois
Cable address "Bargreene"

Send information on the Barber-Greenes checked below as indicated:

- ☐ 363 Conveyor
- ☐ 358 Unloader
- ☐ Heavy-Duty Conveyor of_____belt width, _____length and/or _____capacity
- ☐ _____
  Other B-G Equipment
- ☐ Have a Representative Call

Name _____

Company _____

Position _____

City _____ Zone _____ State _____

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The coupon will bring you complete information on any Barber-Greene machine without cost or obligation.

We will be glad to have our representative call to discuss your material handling problems with you.

We maintain a Department for the sole purpose of solving your material handling problems.

BARBER-GREENE COMPANY
Aurora, Illinois

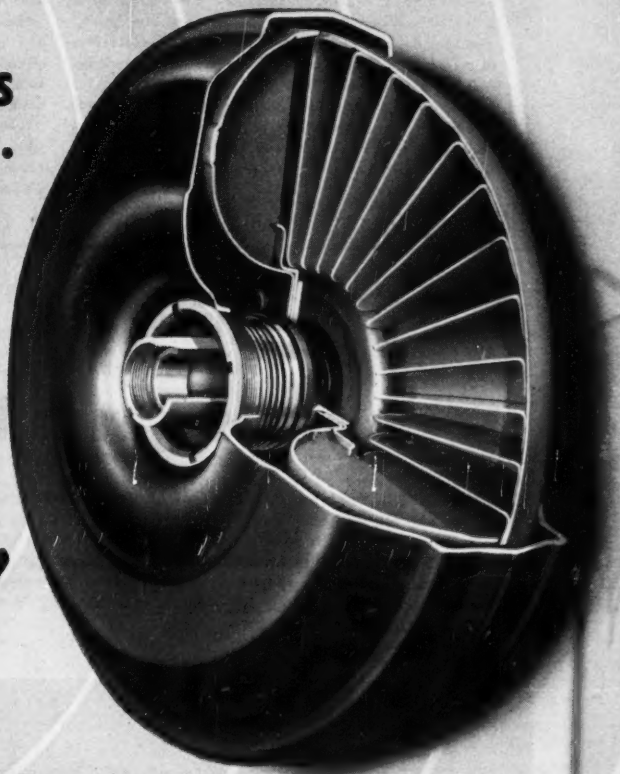
Great News from Chrysler!

CHRYSLER INDUSTRIAL ENGINES now available with...

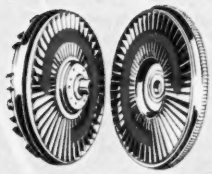
gyrol

Fluid Drive

at Amazingly Little Cost!



Actually only slightly more than the conventional flywheel which it replaces.



Driver and Runner flywheels are shaped like shallow bowls fitted inside with fins. They operate as separate units, with no mechanical connection—no metal-to-metal contact.

As the Driver turns inside the sealed steel drum, the confined oil produces a powerful swirling out-thrust. Instantly, the Runner receives the impulsion and transmits smooth power to the load.

The coupling is an integral unit. No adjustments are necessary. Oil maintains required fluidity over a wide temperature range. Remains unaffected by seasonal temperature changes.

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PROVED on thousands of industrial jobs—scores of applications under rugged field conditions.

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Industrial Engines and Power Units

HORSEPOWER WITH A PEDIGREE

How About Carbide Bits? . . . They Worked Fine on These Two Jobs

NO ITEM introduced into rock excavation and tunneling in the last few years has created more controversy than has the carbide insert detachable rock bit. In these bits slugs of tungsten carbide or similar material are inserted in grooves in the bit face as cutting edges. They are made by several manufacturers, and while expensive, costing around $15 each at present, they show promise of economy in hard rock because of extremely long life.

Unfortunately, carbide bits were launched to the trade before they were perfected to the point of trouble-free use. Early applications ran into difficulties from poor cementing of carbide to steel, from poor metallurgy of bits, from concentration of stresses in shank steel, and from careless collaring practice. Despite warning from manufacturers that light drifter drills should be used with the bits, contractors and miners insisted on using their customary big drills to gain more footage.

Having gone through their growing pains, carbide bits are now generally satisfactory, even with big drills, and are giving remarkable performance. Care must be taken in collaring not to force the bit too fast until a full bearing of rock has been obtained.

Following are descriptions of two satisfactory construction jobs where carbide bits literally saved the day—on a highway cut in Pennsylvania and a water tunnel in Boston—because extremely hard rock defied drilling with steel bits.

Big Savings With Carbide Bits on Pennsylvania Highway Job

IN EXCAVATING heavy cuts for realigning 7½-mi. of U. S. Route 30 near Gettysburg, Pa., C. J. Langenfelder & Sons, Baltimore contractor, ran into tough rock of intrusive diabase that defied all attempts at drilling with steel bits. Out of 840,000 cu.yd. of unclassified earthwork on the job, 600,000 cu.yd. was rock and shale requiring drilling and blasting. The diabase was present, in various proportions, in some 300,000 cu.yd. of the rock.

THIS INNOCENT LOOKING CUT was a toughie. Intrusive diabase rock on this Pennsylvania highway job baffled all attempts at drilling with conventional steel bits. Carbide insert bits saved day—and more than $110,000 in drilling costs—for contractor.

Early attempts to drill the diabase with customary detachable bits and Ingersoll-Rand X-71 wagon drills proved futile. The bits would penetrate only ½ to 2 in. at the most, then were worn and damaged beyond recovery by resharpening. When Kennametal, Inc., of Latrobe, Pa., offered Langenfelder a few of its cemented carbide bits on test, the harassed contractor welcomed a trial. Highly satisfactory tests showed these bits, of the chisel type, would penetrate from 800 to 1,400 ft. of the diabase rock. As a result, Kennametal PAD 2¼-in. bits were ordered in quantity for the entire hard-rock job.

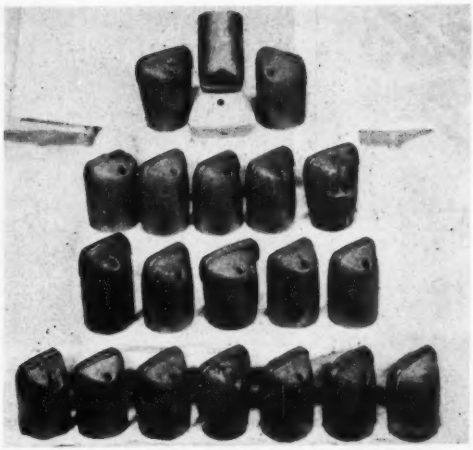
Actually, because the diabase was in intrusions separated by softer rock, the average total penetration per carbide bit ran 1,992 ft. The contractor estimates about half of the hole footage in 300,000 cu.yd. of cuts containing diabase was through the hard rock. On this estimate, a statement by him shows a carbide bit cost of $954 against a probable cost of $112,500 had steel bits been used throughout—an incredible saving of $111,546. He figures this saving as follows, all based on 30 yd. of rock broken per 12-ft. hole:

Probable Cost with Steel Bits:

Bits required per 12-ft. hole . . . 25

Bits required for 300,000 cu.yd. . . . 250,000

Cost: $.045 each; total $112,500



THESE 20 carbide bits represent 40,000 ft. or 7½ mi., of drilling in toughest rock. That means about 2,000 ft. per bit, a phenomenal performance. Old bit at top center is resting on new bit for gage comparison.

HERE'S WHAT a new Kennametal chisel-type cemented carbide bit looks like when new, compared with same type bits after drilling 2,000 ft. of hole each in hard rock.

Cost with Carbide Bits:

Bits used per 12-ft. hole. . . 0.006
(166 12-ft. holes per bit)

Bits used for 300,000 cu.yd. . . . 60

Cost: $15.90 each; total $954

Savings, Carbide bits over steel . . . $111,546

The above figures do not take into consideration the savings in labor, equipment time, production time and other intangible factors.

Hercules Gelodyn No. 2 in 1¼-in. cartridges was the explosive used, so all drilling was based on a minimum hole diameter of 1½ in. The carbide bits were used until their gage had worn down from the original 2¼ in. to 1½ in. No attempt was made to sharpen these bits. Drilling was with 12 I-R X-71 wagon drills operating at 105-lb. air pressure at the drill.

Despite the success of the bits, it must not be inferred that no trouble was encountered in their use. Some of the drillers were inexperienced, and were careless in collaring the hole, breaking off the carbide insert at the outer wing. Again, they would let the wagon drills work off the hole without realigning, thus introducing undue stresses in drill shanks and bits. Some breakage of both shanks and bits was experienced. The chisel form of the Kennametal bit proved entirely satisfactory except for occasional jamming in a rock seam.

H. C. (Pop) Foster was superintendent for C. J. Langenfelder & Sons for most of the job. In the late stages he was succeeded by A. T. Everhart. John Lower was resident engineer for the Pennsylvania State Highway Department.

Carbide Bits Pay Off on Boston Tunnel

BATTLING HARD ROCK in Boston Water Tunnel are JESS R. GLAESER, project manager, and CHARLES KELLEY, general superintendent, both veteran tunnel drivers.

"TOUGHEST ROCK I ever saw," says Jess Glaeser, "but we finally licked it with carbide bits." He was talking about the 5½-mi. City Tunnel being driven by Perini Maney Walsh & Rugo Construction Companies for the Metropolitan District Water Supply Commission of Boston. Jess, a veteran tunnel driver, is project manager for the contractors, and therefore knows what he is talking about. He turned to carbide bits in hard rock after experience with steel bits proved mighty discouraging.

City Tunnel, part of Boston's Hultman Aqueduct, consists of four shafts (designated Nos. 5, 6, 7 and 7B), 25,262 ft. of 12-ft. finished diameter tunnel, and 3,421 ft. of 10-ft. tunnel. Shafts 5, 6 and 7 were sunk under a previous contract; the tunnel contractors sank shaft 7B and will install pumping and control works in all shafts. Tunnel driving and lining are both carried on from shafts 6 and 7 only, where headframes salvaged from the Seaboard Construction Co.,

(Continued on page 52)

What makes roads or streets good?

GOOD ENGINEERING
GOOD MATERIALS
GOOD WORKMANSHIP
GOOD EQUIPMENT

We believe that good equipment plays a big part--

--and we believe that GALION builds the best and most practical Rollers and Graders in the world. Thousands of users think so too.

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CARBIDE INSERT BITS proved their worth on Boston water tunnel, where hole life averaged 270 ft., compared with only few inches for conventional bits. Both Timken and Ingersoll-Rand carbide bits were used, and after 24 to 32 30-in. drifter runs, were brought to surface for inspection and sharpening if necessary. Here job blacksmith LES HYLAND touches up a used bit on a grinding wheel.

(Continued from page 51)

Delaware Aqueduct Tunnel contract have been installed.

In general the tunnel rock is a very hard sedimentary conglomerate, interspersed with intrusions of igneous melaphyre, basalt and aporhyolite. The melaphyre, encountered in stretches half a mile long, proved to be the hardest and toughest.

In this rock, conventional steel detachable bits averaged only 6 in. before they had to be changed. This greatly handicapped drilling operations set up for 30-in. drifter runs with Ingersoll-Rand 4-in. drills, and progress slowed down to nearly a halt.

In desperation, Glaeser tried carbide bits, but before putting them in the hole, he tried them out at a quarry. The tests were not only to appraise the bits themselves, but to see how they would work with 4-in. drifters, a drill much larger than recommended by bit manufacturers. On both counts the carbide bits proved satisfactory, so the contractor adopted them for the tunnel, using both Timken Carbide Insert Rock Bits and Ingersoll-Rand Carset Bits.

Use of the carbide bits in the hard rock has resulted in an average drilling cost of 5.2c. per ft. Cost of drilling with steel bits had been 7½c. per ft., not including delay costs due to slow progress.

After the carbide bits have been

(Continued on page 54)

LIGHT IN WEIGHT

BIG IN VALUE

B37 Paving Breaker

joins famous Gardner-Denver family

Weighs only 38 pounds! Yet the Gardner-Denver B37 Paving Breaker is packed with many of the same big values that have proved so popular in the medium B67 and heavy B87 machines.

The tough-slugging B37 makes fast work of light demolition jobs. It's light and safe in the hands of the operator who must work from scaffolding, or wherever footing is treacherous. It's built to endure years of hard work. Here are some of the reasons why:

Renewable chuck liner — easily replaced at low cost — a new liner protects both tool and breaker against a loose-fitting shank.

Double-life hammer — block type piston hammer is reversible for double life — an exclusive feature. Use of tappet minimizes wear on hammer striking face. Tappet operates in renewable bushing.

Extra safety — exclusive throttle valve lock works like the safety on a gun — prevents accidents before they happen.

Easy riding — fast cutting action without violent recoil means less operator fatigue. Holding handles stay cool.

Low air consumption — with efficient low-lift plate valve. Long piston stroke gives hard-hitting blow. Exhaust will not "freeze."

Quick acting latch type steel retainer — holds tool securely.

Positive lubrication — integral oil reservoir meters oil to every working part, including tool shank. Lubricated shank reduces chuck wear and breakage of gads.

For complete information, write Gardner-Denver Company, Quincy, Illinois.

B67

B87

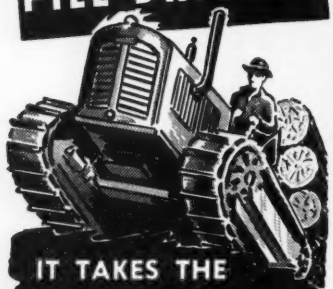
Specifications for GARDNER-DENVER B37 PAVING BREAKER

Weight	38 lbs.
Piston Diameter	1⅞"
Length	22"
Size of Tool Shank	1" Hex. x 4¼"
Air Hose Recommended	¾"
Weight, Boxed for Shipment	61 lbs.
Boxed Dimensions	8" x 16" x 26" 1.9 cu. ft.

GARDNER-DENVER

SINCE 1859

HEAVY HAULING
OR
PILE DRIVING



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SUPER-VULCAN
OPEN TYPE
DIFFERENTIAL — ACTING
PILE HAMMERS
18C, 30C, 50C and 80C

In pile driving, choose the power of Super-Vulcan, the rugged, positive-action hammer that delivers more blows per minute and drives any kind of pile down on schedule with profit-making economy.

Ask any user about Super-Vulcan's rugged strength, compactness, simple operation, cost saving, and proven performance. The open type fits the same leads, uses the same accessories, as the Warrington-Vulcan Single-Acting Pile Hammer.

Choose durable Super-Vulcan, the perfect answer to your pile driving problems. Write for complete details today.

Sizes
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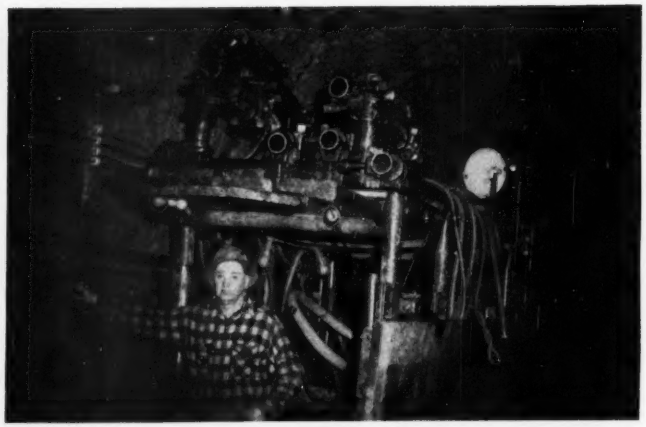


SIX-DRILL JUMBOS, mounting I-R 4-in. drifters, drilled out 56-hole rounds in Boston Tunnel. Contractor here proved carbide bits could be used on big drills, contrary to early beliefs.

BUSMAN'S HOLIDAY at Boston finds engineers and contractor inspecting holing through between shafts 6 and 7. They are: JOHN VERDIC, resident engineer, Metropolitan District Commission; JESS GLAESER, project manager; FRED GOW, construction engineer, M.D.C.; and KARL R. KENNISON, chief engineer, M.D.C.

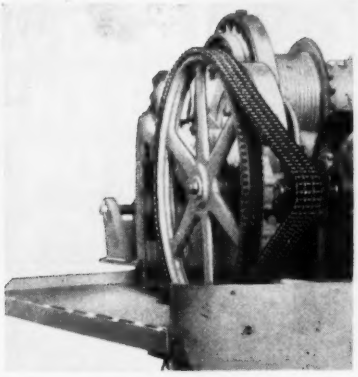
(Continued from page 52)

used for 24 to 32 runs of 30 in. each, (60 to 80 ft.), they are brought to the surface for inspection. Frequently they are found satisfactory for further service, but if not, they are trimmed up or sharpened on a grinding wheel. All new bits are 2 in., and average hole life has been 270 ft. per bit. Bits are discarded when the gage wears down to 1½ in., as this is the minimum size hole desired. However, all holes are started with 2-in. bits to allow for use of safety primers with 1½-in. cartridges. Care is taken in collaring the holes to prevent damage to the bits.

Drilling speed averages 15 in. per min., and the carbide bits have improved over-all drilling speed by at least 50 percent. From 52 to 56 holes 8 to 10 ft. deep are drilled per round and loaded with Hercules Gelamite No. 1 and 2. Powder consumption runs as high as 6½ lb. per yd., an indication of the hardness of the rock.

Muck is loaded into cars by Conway 75 mucking machines. A belt conveyor loading a full train was tried, but was found impracticable because of the small size of tunnel. Lambert mine hoists, powered by G. E. 500-hp. motors operating at 2,200 v. have been installed at both shafts.

For the contractors, Perini Maney Walsh & Rugo Construction Companies, Jess R. Glaeser is project manager, and Charles Kelley is general superintendent. Karl R. Kennison is chief engineer for the Metropolitan District, Fred Gow is construction engineer and John Verdie is resident engineer.



Diamond multi-strand Roller Chain Drive from power source—enclosing case removed.

DIAMOND Roller Chains

Have Served Well On Koehring Excavators

• Compactness, flexibility of application and the reserve strength to meet heavy machinery requirements are time-proven advantages of DIAMOND Roller Chains. They deliver the power dependably from prime mover to shaft, and shaft to shaft without waste of space or power. Diamond Drives divide the load over many sprocket teeth, reduce bearing wear for long-life service and minimum maintenance.

Leading machinery builders for many years have made wide use of Diamond Roller Chains and machinery users consider these drives as good evidence of sound engineering of the machine itself... DIAMOND CHAIN COMPANY, Inc., Dept. 418, 402 Kentucky Ave., Indianapolis 7, Indiana. *Offices and Distributors in All Principal Cities.*

*The star indicates location of main power drive (in enclosing case) on Koehring Excavator.

DIAMOND ROLLER CHAINS

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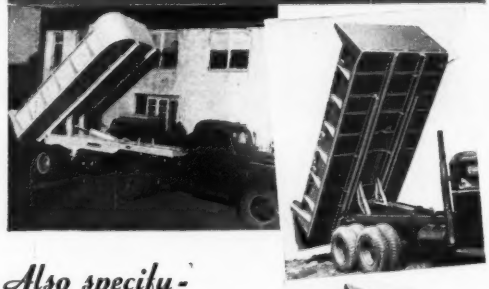
WHEN YOU WANT...
Extra Heavy Duty
HOISTS for-
Extra Heavy Loads



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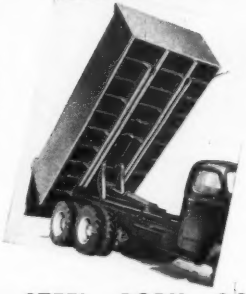
PERFECTION 300 Series STANDARD HEAVY-DUTY BODIES or PERFECTION ENGINEERED, SPECIAL PURPOSE, HEAVY-DUTY BODIES. We design and build them in the same plant.

Write, phone or wire today for complete information and literature.



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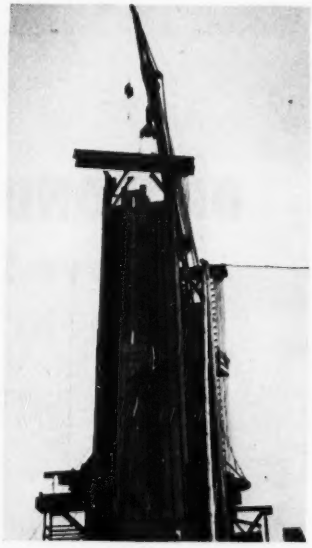
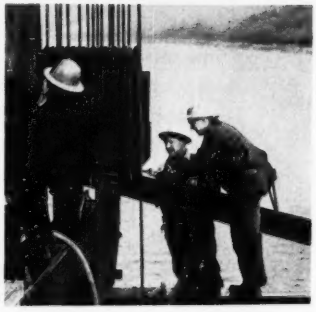
PERFECTION STAKE and DUMP BODIES HYDRAULIC HOISTS — **FOR ANY TRUCK** STANDARD or SPECIAL UNITS IN ALL SIZES - FOR ANY USE

Tower Traveler Lifts Self by Bootstraps





THE STIFFLEG erection derrick on the east tower, Tacoma Narrows Bridge, literally lifts itself up in 50-ft. jumps by its bootstraps. The derrick rides a trussed platform pinned to tower legs during erection procedure. When the tower legs reach 50 ft. above the platform, temporary cross-girders are fastened to top of each leg, from which is hung a 9-sheave block and falls. The lower end of the tackle is hooked to the platform, the hoist line is reeved up, and up she goes. Bethlehem Pacific is doing the job.

STANDARD ENGINEER'S REPORT

RPM DELO

TEST DATA

LUBRICANT *RPM Delo Supercharged Lubricating Oil*

UNIT *Caterpillar Diesel-D17000-V8 Cyl.*

CONDITIONS *Cont. High load-actual field oper.*

FUEL *Commercially available Diesel Fuel*

TEST PERIOD *4 months*

FIRM *Homer Jones Ranch, Chandler, Ariz.*

NEW LUBRICATING OIL
STOPS ALL RING STICKING WHERE ORDINARY OIL FAILED

Specially Developed RPM DELO Supercharged Oil Solves Extra Tough Load and Carbon Problems

AFTER ONLY 625 HOURS operation on an ordinary heavy-duty type oil, an engine pulling 90% of full load rating had 39 stuck rings — only 9 of its 48 rings were free and several were broken. There were heavy lacquer and carbon deposits in ring grooves and on piston-skirts, as indicated by this unretouched photograph of one of the pistons. Besides stuck rings, note clogged oil-return holes and oil rings.

OPERATED 1582 HOURS — more than twice as long — on RPM DELO Supercharged Lubricating Oil, the same engine, running under the same load and fuel conditions, stayed efficient and clean, as this unretouched photograph shows. At the end of test all 48 rings were free, there were no piston-skirt deposits, ring-groove deposits were 50% less. Note how RPM DELO Supercharged kept oil-return holes open.

REMARKS: RPM DELO Supercharged Lubricating Oil is a new product added to our line. It solves operating problems in both Diesel and gasoline engines, especially where load conditions are extreme.

Its detergent prevents carbon and lacquer deposits on all parts, even with high sulphur-content fuels.

RPM DELO Supercharged Oil sticks on hot and cold surfaces — reduces wear under the heaviest loads. (Cylinder-wear averaged only 0.0014 inches per 1000 hours with RPM DELO Supercharged, while with the ordinary oil it was 0.0043 inches — three times greater.) RPM DELO Supercharged Lubricating Oil also contains special compounds that resist oxidation and sludging, prevent bearing corrosion and internal rusting, and stop foaming.

STANDARD TECHNICAL SERVICE: checked and reported this test. If you have a lubrication or fuel problem your Standard Fuel and Lubricant Engineer or Representative will give you expert help; or write Standard of California, 225 Bush Street, San Francisco 20.

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STANDARD OIL COMPANY OF TEXAS • El Paso, Texas
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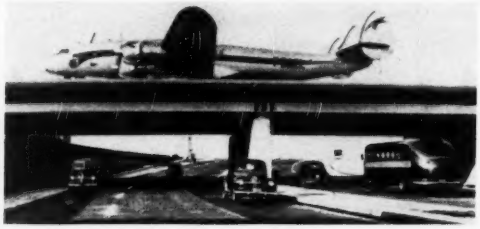
JOB oddities

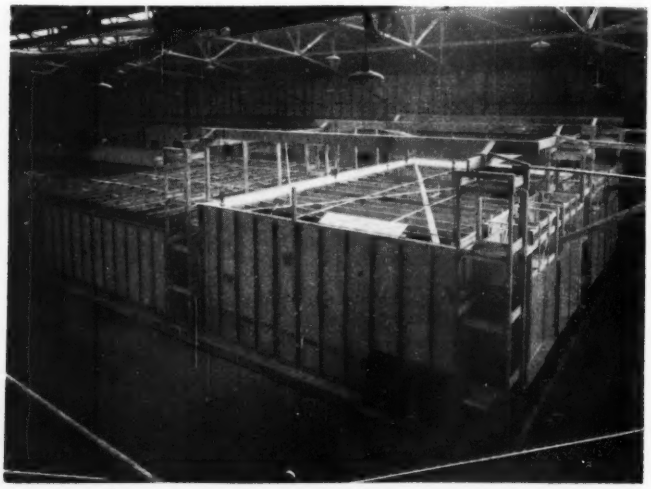
ROADWAY MATTING of wire mesh for soft or sandy ground is laid at U. S. Marine Base, Quantico, Va., in demonstration to test it's suitability for emergency airfield runways or parking strips.—Wide World Photo

GRAIN ELEVATOR goes for ride across North Dakota prairies and rolls right over Great Northern Railway overpass at Glenfield, N. D. William Reese, Thief River Falls, Minn., contractor, took only 3 days to move 230-ton structure 65 mi. from Hamar to Wimbledon, N. D.—Wide World Photo



SIMULTANEOUS MOVEMENT of intersecting ground and air transport traffic is accommodated at this underpass on line of runway at New York City's Idlewild International Airport. Big Constellation plane passes over motor vehicle traffic at two-level intersection.—Wide World Photo

FULL-SCALE MODELS or "mock-ups" (below) of sections of Princeton's $6,000,000 Harvey S. Firestone Memorial Library are erected before actual construction by Turner Construction Co. to aid determination of most satisfactory height, lighting and equipment for 18x24-ft. bays of open stack structure. Ceilings of two bays were capable of being raised or lowered by pulleys to indicate effect of various heights.



GIANT WRENCH (below), with length of 47¼ in. head thickness of 5 in. and 9⅝-in. hexagon opening, is forged by Plomb Tool Co. for use of New England manufacturer. Wrench weighs 284 lb.

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In planning the structural jobs of today and tomorrow, architects, engineers and contractors specify Atlas *Duraplastic air-entraining portland cement. To the outstanding flexibility of concrete design, Duraplastic brings added durability and improved appearance. Its advantages apply equally to all types of mass and structural concrete—for foundations, columns, walls and floors in buildings, for paving and other construction. Duraplastic is adaptable to slip-form, gunite, stucco and many other uses. It makes *better concrete at no extra cost.*

With Duraplastic cement, less mixing water is needed for a given slump of concrete. The resultant mix is more *plastic*, more *workable*, more *cohesive* and more *uniform*. It's easy to place and finish. Water-gain and segregation are effectively minimized. The concrete is highly resistant to the effects of freezing-thawing weather and exposure.

Atlas Duraplastic calls for no added expense or unusual changes in procedure. It conforms with ASTM and Federal specifications. Send for further information to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Des Moines, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

**"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

CM-D-86

ATLAS DURAPLASTIC TRADE MARK REG. U. S. P. O.

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—ABC Network*

KWIK-MIX

Moto-Bug

MAKES

MAN-HOURS 3 to 4 TIMES *more productive*

In soft, muddy-going, Moto-Bug's low-pressure, 16 x 5.00 tires on front drive wheels provide plenty of traction and flotation. Dual rear steering wheels are free-riding on axle . . . have a differential action for easy turning at a touch of the steering lever.

● Now you can cut the high costs and hard work out of materials-handling . . . make man-hours 3 to 4 times more productive, with Kwik-Mix *fully-powered* Moto-Bug. It hauls bigger, heavier loads each trip . . . has 10 cu. ft. capacity bucket for bulk-materials . . . handles up to 1200 lbs. as a flat-bed truck. And . . . you get more loads per hour because Moto-Bug eliminates slow-going manual labor, cuts fatigue. There's no end-of-day slow-down.

MAKE IT EASIER TO GET... AND KEEP WORKERS

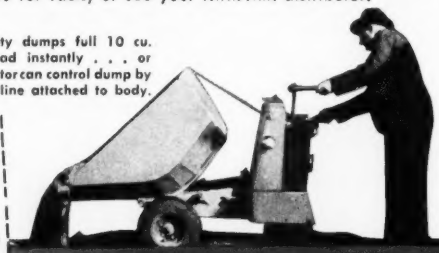
Moto-Bug takes *all* the pushing and pulling out of traveling and spotting. No manual effort is required to back up . . . Moto-Bug moves by power both forward *and reverse* at speeds from 1½ to 4 m.p.h. Riding step is available to further reduce operator fatigue.

YOU ALSO GET:

Positive steer . . . hand lever is connected *direct* to dual rear steering wheels. Handy 33" width . . . clears narrow doorways, aisles, turns in own length. Controlled gravity dump . . . lets operator dump part of a load, or spread, by means of a handy bucket-control rope. *Standard-make* gasoline engine, 4 h.p., air-cooled, 4-cycle type.

Only Kwik-Mix Moto-Bug gives you *all* these time and labor-saving features for more production, more profits. Write for facts, or see your Kwik-Mix distributor.

Gravity dumps full 10 cu. ft. load instantly . . . or operator can control dump by snub-line attached to body.



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☐ 6-P Plaster Mortar

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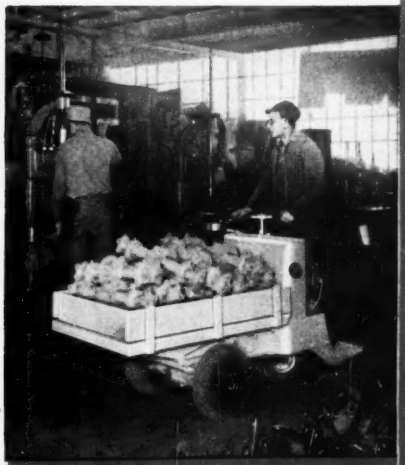
HAULS UP 20% GRADES

Moto-Bug's 4 h.p. takes full loads up 20% grades, loading ramps, over rough-going . . . moves more material faster around factories, foundries, stockrooms, construction jobs . . . keeps production up.

STURDY "X" PLATFORM CARRIES OVER ½ TON

Flat-bed, interchangeable with 10 cu. ft. bucket, carries up to 1200 lbs. . . . has stake pockets for adding side boards. Operator rides on back step . . . has handy steering lever for spotting . . . reverse power for back-up.



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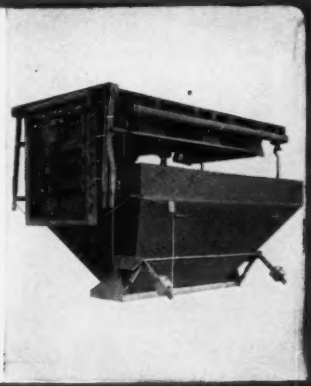
Johnson Roadbuilders' Batchers are completely portable . . . adaptable to fit similar bins . . . provide accurate control . . . produce top-quality concrete with utmost economy of materials. Handle 2, 3 or 4 aggregates in sizes for 34-E paver batch or 2, 3 or 4 yd. batch for charging transit mix trucks. Other Johnson sizes, types to fit production problems of any plant.



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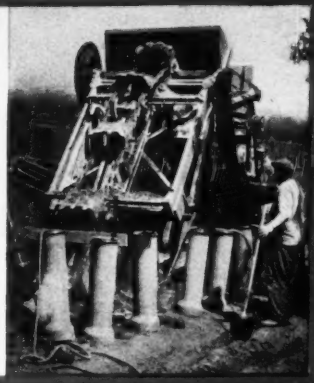
310 TRENCHLINER* digs 15' deep, up to 54" wide

For your heaviest sewer, gas and water-main excavation, check this heavy-duty Parsons 310 Trenchliner. Digs to 15' deep . . . 54" wide . . . has 45 digging speeds from 8" to 186" per minute. Boom is telescopic, easily adjusted for digging depths . . . shifts to cut within 15" of either side of machine. Power shifts the arc-type spoil conveyor. 4 smaller Trenchliners also available.

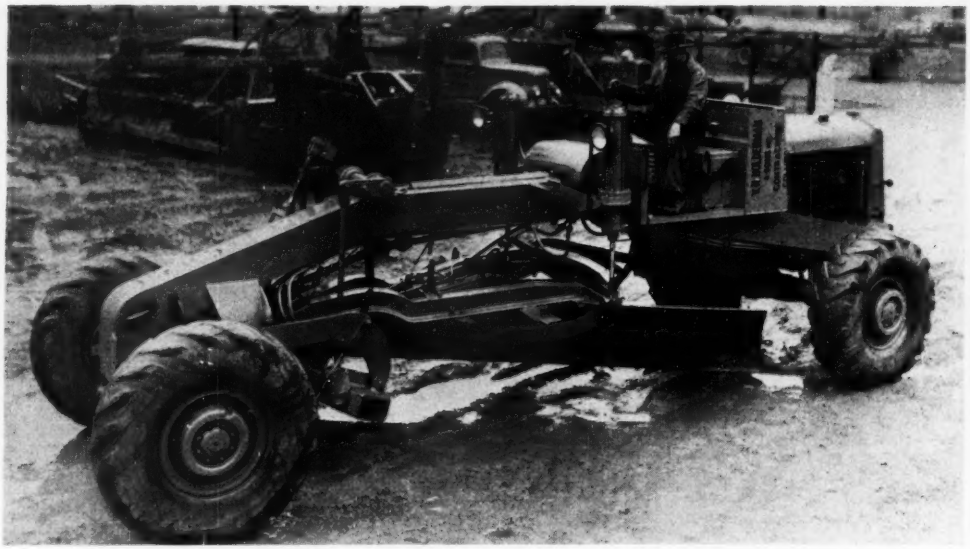


PARSONS COMPANY
Newton, Iowa

HALF-YARD 205 has self-adjusted clutches

With Koehring ½-yard 205, there's no time-out for daily manual clutch adjustments . . . no "compromise" settings. You get top operating efficiency from start to end of shift because heat-compensator springs on the 205's six main clutches make all tension changes automatically. That's only one of many ways this heavy-duty 205 gives you more work-time . . . bigger daily output. It will pay you to get all the facts on the 205.

A Construction Methods EQUIPMENT MAINTENANCE Feature



Repaired, repainted, and ready to go—symbolic of a contractor's belief that . . .

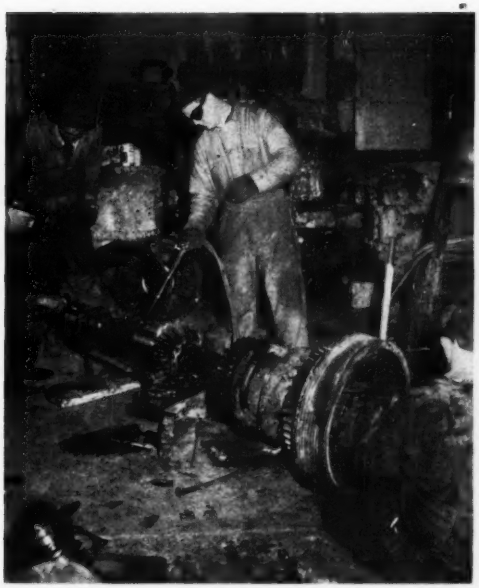
Overhauling Equipment Last Winter Means More Profits This Summer

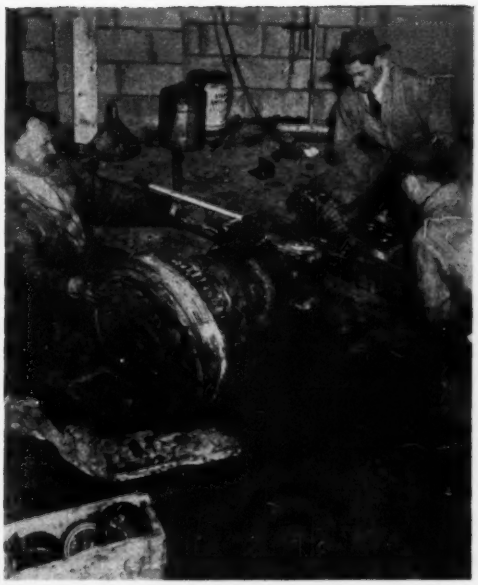
STEAM-CLEANING with a Hypressure Jenny at 300-psi. pressure, is first step in overhauling and rebuilding all sub-assemblies such as these gears out of a D8 tractor.

PREVENTIVE MAINTENANCE of construction equipment during the winter means more profits next summer to V. N. Holderman who, with his sons Robert and Gail, heads up a large highway and bridge contracting company in Columbus, Ohio. For the last 10 years, the company has operated in Ohio, Pennsylvania and West Virginia.

Holderman believes in well-painted, well-kept and good-running equipment. This results in greater pride of operatorship by the men running the machines on the job. It minimizes the time lost by breakdowns which, in turn, means greater profits on the job.

Some time during January and February of each year, each major unit of Holderman's half-million dollars worth of construction equipment is brought into his repair garage in Columbus for complete overhauling and repainting. This is no small job since it includes the following equipment: Five 16-yd. Euclid trucks, three





WORN GEARS are removed from swing shaft of 10-yr.-old 1-yd. Lima 405 crane by heating them with torch (left), jacking with two 10-ton Walker jacks (right), plus a few hefty blows with 8-lb. sledge.

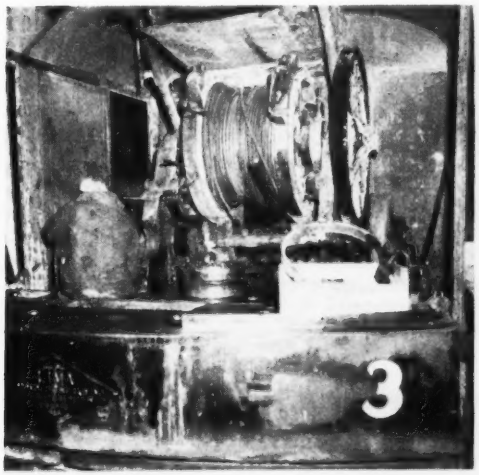
12-yd. LeTourneau and two 15-yd. LaPlant-Choate scrapers, a 2-yd. Bucyrus-Erie B51 shovel, a ¾-yd. Byers crane, a Thew-Lorain 75 crane, nine track-type tractors, two 15-ton semi-dump Gramm trailers, a 20-ton Rogers trailer and a 15-ton Trailmobile.

It also includes Koehring twin-batch and 34E pavers, Jaeger concrete spreader and finishing machine, a Koehring longitudinal float, an Austin-Western 99M patrol grader, and some light personnel trucks.

Upon arrival at the 80x120-ft. repair shop, the equipment is stripped down, and the sub-assemblies thoroughly cleaned on a concrete apron at the rear of the shop. The mud is hosed off and a Hypressure Jenny, using a mixture of a special cleaning compound and steam at 300 psi., completes the job.

The component parts are then examined, and either metalized by

(Continued on page 66)

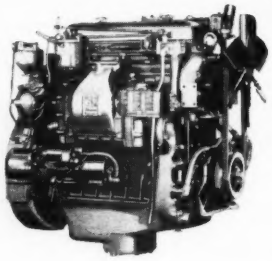


STREAMLINED CAB will be added to rebuilt Lima crane for improved operator visibility, and better access to working parts.

CHICAGO PNEUMATIC air wrench, powered by 105-cfm. Jaeger compressor, makes short work of removing old bolts from track of D8 tractor, before bolting new chain to track shoes that are still good for many more months.

"They don't come any better."

Says Master Mechanic Ralph Stinson of Missouri Valley Construction Co.



MEN who really know—men, like Ralph Stinson, who have seen General Motors Series 71 Diesels at work—offer proof of their performance: "They hold up better and are easier to maintain than any other Diesel engine in the same horsepower range. They don't come any better," Mr. Stinson says. And he cites his records to back up his statement:

In the summer of 1946, Missouri Valley Construction Co. replaced three 3-ton dump trucks with a pair of Koehring Dumptors, powered by GM 4-71 Diesels. Since then, the two units, now quarrying limestone at Warren, Mont., have tripled production with lower fuel costs. Maintenance has been considerably lower too, Mr. Stinson reports.

General Motors Series 71 Diesel engines are designed to produce more power at lower cost. Their sturdy two-cycle operation delivers power at every piston downstroke—smooth, dependable power that responds instantly to varying load demands. They're sensible in size and weight, and compact construction makes them easy to install. Simplified design makes service and maintenance much easier.

All these features combine to make your operation easier and more profitable. It will pay you to investigate the possibilities. Get the complete story from your nearest distributor or write to us.

DETROIT DIESEL ENGINE DIVISION

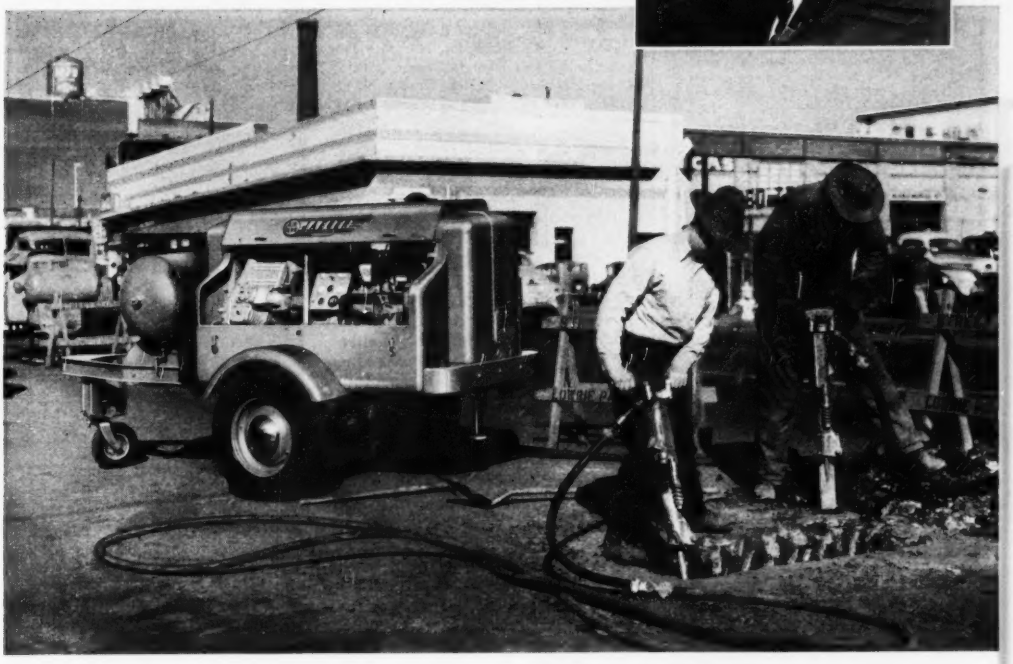
SINGLE ENGINES... Up to 200 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS... Up to 800 H.P.

GENERAL MOTORS

DIESEL BRAWN WITHOUT THE BULK

GM GENERAL MOTORS DIESEL POWER

Wouldn't YOU look happy getting out 4 days' work in 3?



Lowrie Paving Company, leading paving and underground contractors in the San Francisco area, have found that their Jaeger "new standard" Model 125 Compressors will each operate two 85# breakers at continuous peak performance, thereby breaking as much as 40% more pavement than they were able to do with previous model machines.

"We are doing as much work in 3 days with the new standard 125 as we did in 4 days with 105 ft. machines" says Jim Lowrie, who now has a fleet of 5 Jaegers in continuous operation.

You can get a comparable increase in production with any "new standard" Jaeger Air Plus. From the Model 75 that holds full 90 lbs. pressure in a heavy pavement breaker, up to the Model 600 that runs 2 heavy wagon drills at full 90 lbs., every Air Plus rating is matched to today's tools, not the tools used in 1932 when 60 to 500 ft. of air was enough. Ask your Jaeger distributor to prove this on your own job.

Note: Because of "Fuel Miser" speed control, Jaegers use no more fuel than others when not delivering more air.

THE JAEGER MACHINE CO., Columbus 16, Ohio

Leading distributors in 130 cities of the U.S. and Canada sell, rent and service Jaeger equipment.

JAEGER

engineered equipment

COMPRESSORS • DIAGONAL SCREED FINISHERS
SCREW SPREADERS • BITUMINOUS PAVERS

Haul SMALL or MEDIUM EQUIPMENT WITH YOUR DUMP TRUCK ON THE

ROGERS "TAGALONG"

FRONT LOADER

Available in 10 to 20 Ton Capacities

With the new Rogers "Tagalong" trailer a dump-truck serves as the tractor to haul light and medium equipment, and one driver handles both jobs.

Your overhead is kept to a minimum. Hauling charges and costly delays are eliminated with the "Tagalong".

Write for prices and additional information on this versatile trailer which will save its purchase price in a remarkably short time. PATENTS PENDING.

Export Office: 50 Church St., New York 7, N. Y. Cable Address: "Broscites"

ROGERS BROTHERS CORPORATION

220 Orchard Street

ALBION, PA.

EXPERIENCE builds 'em

PERFORMANCE sells 'em

Shunk

Superior Quality

BLADES AND CUTTING EDGES

For any make of machine Motor Graders, Maintainers, Scrapers, Drags, Bulldozers, Backfillers, Wagon Scrapers, Trail Builders, Trail Blazers Carryalls Also—

CUTTING EDGES
WEARING BOOTS
BACK SLOPERS
EXTENSION BLADES
MOLDBOARDS
and
SCARIFIER TEETH

50 years of manufacturing blades has developed for you a special steel, milled through our own rolls and forged at the edges to give that extra wearing quality you need.

All widths lengths and thicknesses. Punched ready to fit your machine.

Consult your internationally recognized Blade Specialists. Write for special bulletins, giving type and name of machines you operate—get set for Blades early.

Shunk

Member of

MANUFACTURING COMPANY

Established 1854

BUCYRUS, OHIO.

HEATED PAINT SHOP, insulated with aluminum foil (Alfol), gives all repaired trucks and construction equipment two coats of paint. First coat is red oxide and second is Omaha Orange, applied with Binks spray guns, models 19 and 7, respectively. First coat has just been applied to this ¾-ton International KB2 truck.

(*Continued from page* 63)

welding and finishing, or replaced with new parts from a well-stocked supply room in one section of the shop. The shop crew includes Carl Larimer, shop superintendent, and 4 mechanics together with 4 helpers. Some parts must be ordered, usually with less than 10 days' delivery.

After the sub-assemblies are completely overhauled and reassembled in the completed machine, it goes to a 26x60-ft. paint shop, heated with two Reznor ceiling heaters, for two coats of paint. The first coat is a red oxide and the second is Omaha Orange, applied with Binks spray guns models 19 and 7, respectively. A third building 30x70-ft. is reserved for storage and repair of tractor treads.

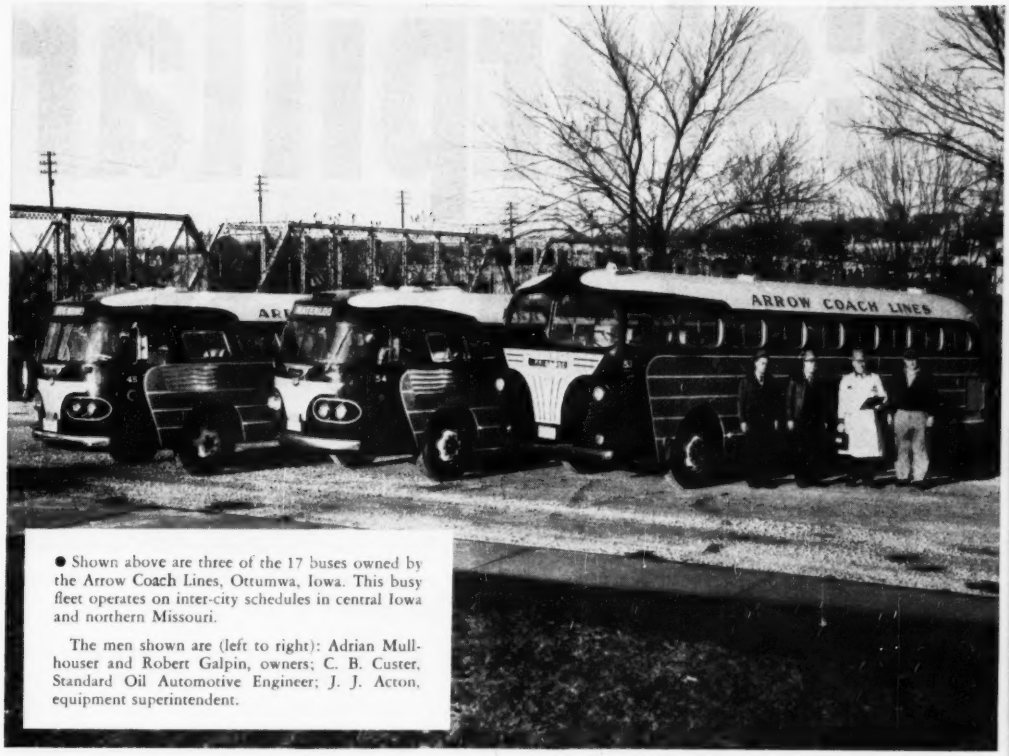
Extending this program of centralized repair, Holderman plans, for the first time this year, on bringing any equipment suffering major breakdowns on the job, into his Columbus shop for repair. This will permit a faster and more thorough repair job, and it will avoid the many interruptions that usually occur when equipment is repaired on the job. The equipment also can be repainted, if necessary.

The value of good overhauling and repair of heavy construction equipment was demonstrated on a shovel - rebuilding job requiring about 21 days this winter. It is a 10-year old 1-yd. Lima 405 crane, powered by a Caterpillar 8800 engine. It was recently purchased for part time operation such as setting bridge steel and handling aggregates at a concrete batching plant. Repairs and rebuilding, including a streamlined cab for better operator visibility and easier access to the operating parts, are expected to cost not more than $3,000.

E. R. MOWERY, master mechanic (left) and Robt. E. Holderman, secretary and treasurer of the contracting company, pause long enough in front of D8 being overhauled, for fast photo.

Good maintenance also is emphasized by Holderman on construction. His operators are trained by Glen Durst, general superintendent, to keep their equipment clean, neat and in good running condition. Individual buildings, about 8x16-ft. in over-all size to permit hauling on a trailer without a special permit, are maintained on the job for specific purposes.

Usually there will be one each of these buildings for: a field office, tire repairs, tractor repair parts, truck repair parts, miscellaneous tools and shovel repair parts, all of which add immeasurably to the effectiveness of the equipment maintenance program on construction.



● Shown above are three of the 17 buses owned by the Arrow Coach Lines, Ottumwa, Iowa. This busy fleet operates on inter-city schedules in central Iowa and northern Missouri.

The men shown are (left to right): Adrian Mullhouser and Robert Galpin, owners; C. B. Custer, Standard Oil Automotive Engineer; J. J. Acton, equipment superintendent.

This record mileage shows economy of...

EXCESSIVE engine deposits prompted the Arrow Coach Lines, Ottumwa, Iowa, to switch its 17 buses to Stanolube HD Motor Oil. The results exceeded expectations.

Mr. Robert Galpin, manager, reports: "We started using Stanolube HD Motor Oil in September 1945 and since that time have doubled our engine life (between complete overhauls). We attribute this largely to cleaner-running engines." Mr. Galpin noted the performance of a Buick engine as an example:

This engine was operated 210,760 miles before it was completely overhauled. During this period of service, the engine remained exceptionally clean. Maintenance was at a minimum.

Why not consider this mileage record in the light of your own operations? Your engines, regardless of type or service, will require less maintenance with the use of Stanolube HD. A trial will prove it. Ask for the services of a Standard Oil Automotive Engineer.

Stanolube HD Motor Oil

Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY (INDIANA) STANDARD

"Caterpillar"

This D8 Tractor with hydraulic-controlled No. 8S Bulldozer, owned by George & Lynch, Inc., Wilmington, Del., is working on a road near Cambridge, Md.

A "Caterpillar" Diesel D8 Tractor with cable-controlled No. 8S Bulldozer at work on a highway at Davis Dam, Arizona. Owned by Utah Construction Co., Kingman, Arizona.

MOVE

THERE are five good reasons why "Caterpillar" Bulldozers — cable or hydraulic controlled — regularly out-produce other units and get the call from owners everywhere.

1 The blade is scientifically curved to keep material rolling smoothly ahead. "Caterpillar's" long experience with motor grader blades helped in its design. It's a lot easier to *roll* dirt than to push it.

2 Controls (cable or hydraulic) give the operator instant, accurate control of the cut. No time is wasted in spinning tracks or excessive lugging down. Only "Caterpillar" cable control has multiple-disc, metallic-lined clutches for easy engagement and disengagement. There's no clutch drag.

3 Angling, tilt and tip adjustments are easy to make — a quick, one-man job for the operator.

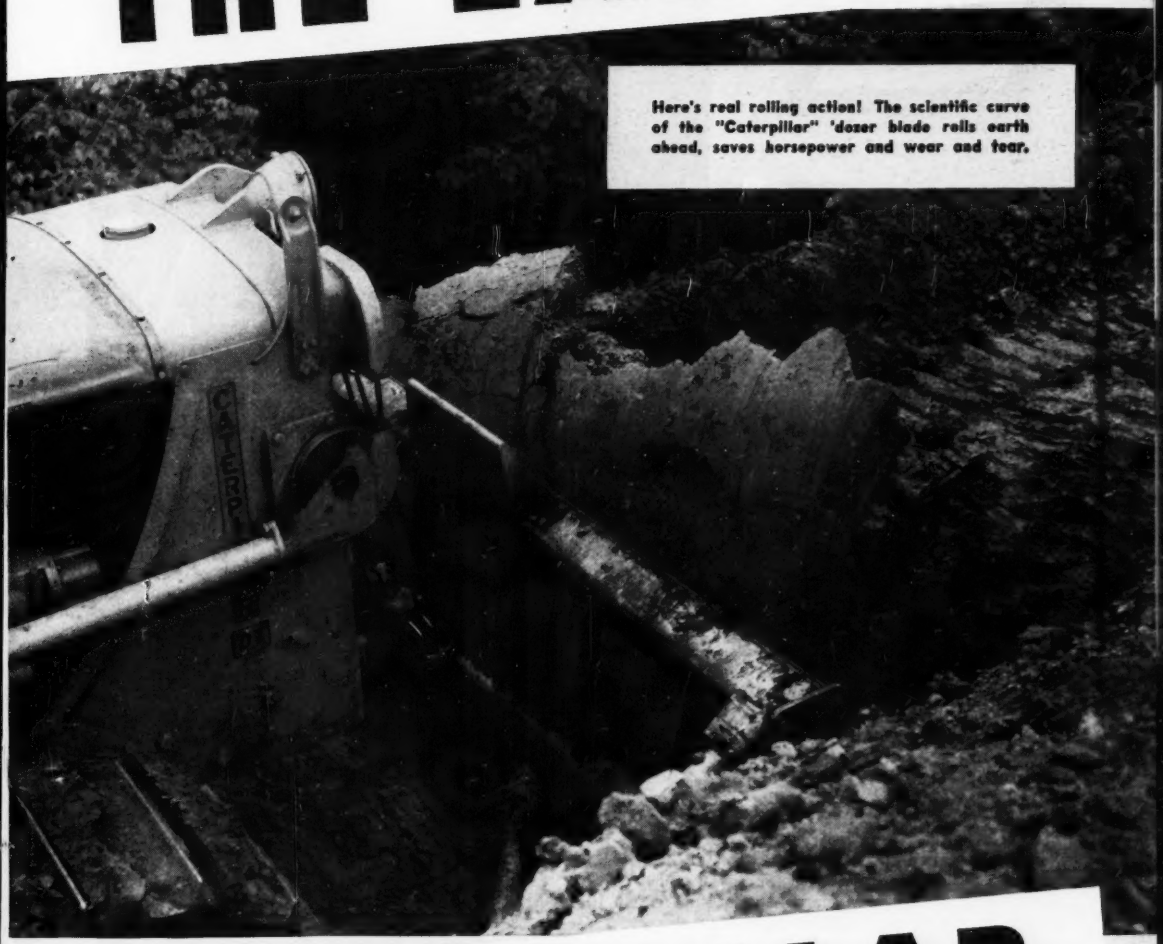
4 There's long life in every blade. "Caterpillar" pays up to 30% premium for the high tensile steels that go into these 'dozers.

5 No overhead frame to interfere with visibility. The operator has a full view of the job.

Your "Caterpillar" dealer is as near as your telephone. He can advise you on your bulldozer needs, and he can get 'dozers for quick delivery. It will pay you to get your order in today.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

'Dozers THE EARTH



Here's real rolling action! The scientific curve of the "Caterpillar" 'dozer blade rolls earth ahead, saves horsepower and wear and tear.

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

Cited for Service

DEL E. WEBB

THE BIG MAN under the big hat stood on a balcony of the addition he had just built for the Westward Ho Hotel in Phoenix and mused: "Guess I'm right back where I started. Twenty years ago I was a baggy-pantsed carpenter swinging a hammer on the main building over there." Perhaps he was, but he was looking at hammers instead of swinging them, for the only similarity between Del E. Webb, carpenter of 1928, and Del E. Webb, one of the nation's greatest contractors, is a continued love of baseball and a construction job well done.

Born in Fresno, Calif., May 1899, Del worked as a carpenter while still in school and excelled in baseball, becoming outstanding enough to land a berth in the Pacific Coast League. But an injury forced him to quit baseball, so he turned to carpentry again, this time on the Westward Ho job in Phoenix in 1928.

Webb's entry into contracting was accidental. While working on a store building, the contractor vanished and Del was commissioned by the owner to finish the job. That gave him a start, and from then on he has been in business for himself. His expansion was rapid, and he was big business even before the war construction boom. A man of his organizing skill and business energy simply couldn't be held back.

From his modest start he rose to boss of a nationwide construction outfit, the Del E. Webb Construction Co., with headquarters in Phoenix, and branches in Los Angeles and Chicago. During the last war his contracts exceeded $100,000,000 for camps, hospitals and housing throughout the Southwest. At one time he employed 25,000 workers.

Thus, a million-dollar job like the Westward Ho addition is simply routine now for the Webb company. Other current work includes an 8 million dollar V.A. hospital at Denver and two more for 2½ millions each at Portland, Ore., and Livermore, Calif. Recent big jobs are $20,000,000 in factories in nine states for Kraft Cheese Corp., a 1½-million-dollar water plant at Phoenix, a Kansas City warehouse costing $3,000,000, and a $10,000,000 linoleum factory in New Jersey.

Del's pet current project is a $20,000,000 housing spread at Tucson, an entire town of 3,000 low-cost homes complete with stores, schools, theaters and all municipal works. This venture, called Pueblo Gardens, occupies a 250-acre site on the outskirts of the city.

These are Webb's big projects. The little ones are too numerous to list, but not too plentiful for his keen mind to keep track of. His associates maintain he knows every phase of all operations, and is a shrewd material and personnel man. He keeps track of his wide-flung operations by traveling in his own plane.

Del still thinks he'd like to have been a good baseball player—but has to be content with being the next best thing, a good baseball club owner. Part owner of the New York Yankees and their sprawling chain of farm teams, he would like nothing better than to win a pennant—next to landing a $10,000,000 construction job.

And as if being a construction boss and baseball magnate weren't enough to keep a man busy, Webb also is active as a director of Bing Crosby Producers, Inc., Arizona Brewing Co., and Sun Valley Broadcasting Co.

Quite a chore for a man who used to swing a hammer. But Del E. Webb is quite a man.

HOW a — LINK-BELT SPEEDER Will Boost Your PRODUCTION

Back of every Link-Belt Speeder design feature is a wealth of experience which says, "This principle assures efficient action and freedom from trouble. Hence—this principle protects the profits by avoiding excessive operating and upkeep expense".

Let the nearby Link-Belt Speeder distributor show you the rest of these distinctive Link-Belt Speeder "Profit Protectors".

FEATURES LIKE THESE GIVE THE LS-85 "SUPER" ¾ YARD SHOVEL-CRANE HIGH PRODUCTION AND LOW OPERATING COST!

- 30,000 pounds lifting capacity with 35' boom and 10' radius.
- Heavy duty lower and upper main frames —all welded construction.
- Efficient, simplified power train.
- Exceptional overall track length and machine width.
- Steering arrangement designed for high maneuverability.
- Ample power unit from the manufacturers standard production. Choice of three diesel engines.
- Two speed travel is standard.
- Efficient, dependable, heavy duty swing and travel mechanism.
- Independent rapid boom hoist with safety power lowering.
- Wide faced operating drums—ample cable capacity.
- Double band clutches.
- Large area drum brakes.
- Fully convertible to all attachments.
- Distributor service and repair parts facilities.

11,510

LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA

Builders of the Most Complete Line of SHOVELS-CRANES-DRAGLINES

RIPPED-UP BLACK TOP
QUICKLY
LOADED

WITH Athey FORCE-FEED LOADER

The Athey Force-Feed Loader is the newest and most modern loading method for handling ripped-up and windrowed black top material. In only 5 passes the material is completely removed from the width of the roadway . . . then re-surfacing operations proceed on U. S. 36 near Washington, Kansas.

And Henery Construction Co., Ottawa, Kansas, profits from a method that helped land the contract!

The Athey Force-Feed Loader's "floating feeder" principle makes this super-efficient production possible. This is the only loading machine that keeps a continuous flow of hard-to-handle material discharging into trucks — at a rate as fast as 5 cu. yds. per minute.

Contractors transform loading rates to a new high and costs to a new low with this tool that's a natural team-mate for your "Caterpillar" Diesel Motor Grader. Figure Athey Force-Feed Loader performance into your next road job. See your Athey-"Caterpillar" dealer.

ATHEY PRODUCTS CORPORATION, 5631 W. 65th St., Chicago, Ill.

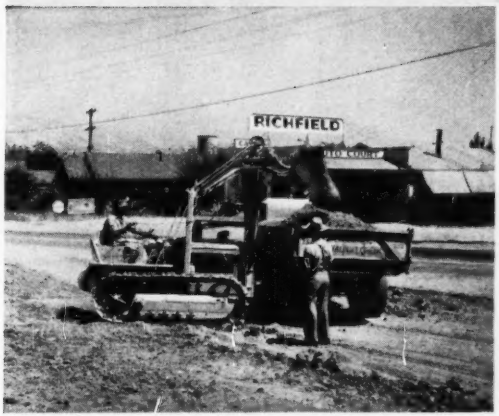
Athey APCOR Products

Athey
FORCE-FEED LOADER ▸ ▸ ▸

Longer Wood Pole on Crane Boom

THE STAR-KNOCKER BOOM—a 70-ft. wood pole lashed to a 65-ft. boom of a Bay City truck crane, shown on page 59 of our last January issue—is good, but doesn't equal a similar rig Atlas Erectors Co., Brooklyn, used several years ago, they point out. All right, here it is—a 90-ft. pole lashed to the jig on top of a 75-ft. boom of a Manitowoc crane erecting pylons for the New York World's Fair in 1939. Any more challengers?

Proven Performance On The Job!



T2 TRAXCAVATOR on road widening job in Walnut Creek, Cal. Smallest size in the TRAXCAVATOR family—powered by "Caterpillar" D2 tractor.

T4 TRAXCAVATOR on "Caterpillar" D4 tractor street grading in Orlando, Fla. Note amount of dirt bucket is pushing ahead and easily handles.

T6 TRAXCAVATOR loading "fill" material on Toronto, Ont., Can. project. The power in the "Caterpillar" D6 insures ample digging and loading push.

T7 TRAXCAVATOR helping to convert Madison, Wis., street into super highway. This biggest TRAXCAVATOR in the line is on a "Caterpillar" D7.

There's a correct size TRAXCAVATOR for every job and purpose. See your TRACKSON-"Caterpillar" dealer for detailed information or write to TRACKSON COMPANY, Dept. CM-69, Milwaukee 1, Wis.

TRAXCAVATOR

REG. U. S. PAT. OFF.

The Original Tractor Excavator

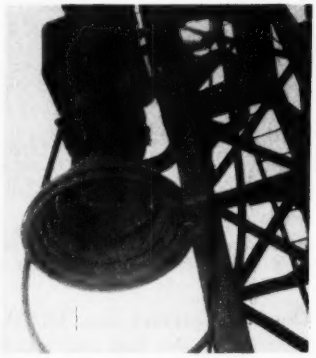
HOW ...they did it

SCAFFOLDING PROBLEM on one-story paper de-inking plant is solved by contractor Al Patch, of Gary, Ind., with prefabricated timber forms to support masons' runways. Originally used to form ground floor over basement and basement concrete walls, 8x4-ft. panels are placed on edge, as shown here, to give 4 ft. of scaffolding. By standing panels on end, Patch gets 8 ft. of scaffolding, while maximum required 12 ft. is obtained by adding another set of panels, stood on edge.

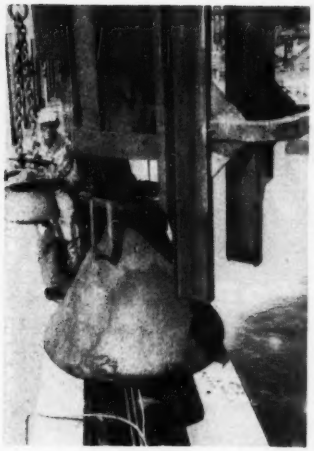
TO PREVENT ice forming and clogging roof drains on new John Hancock Mutual Life Insurance Co. home office building in Boston, recently completed by Turner Construction Co., a coil of ¾-in. steam tubing is placed around pipe as it comes through roof slab. Shut-off limits its use for adverse weather, thus insuring constant drainage and preventing roof puddling and costly leaks.

NIGHT LIGHTING of highway bridge roadway at Salem, Mass., to facilitate safe driving, is accomplished by mounting row of 8-ft. Sylvania low-brightness fluorescent lamps on 5-ft. high guard rail. Installation is said to eliminate glare and "blinking" effect of individually mounted incandescent lamps on poles. Specular reflectors throw diffused light across 32-ft. roadway, enabling motorists to drive without using headlights.

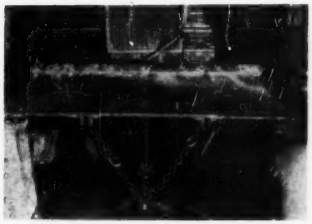
DITCH MAINTENANCE for Virginia State Highway Department is simplified by use of Warner & Swasey Gradall machine which replaces hand labor and clamshell bucket. Boom has sufficient reach to enable machine to operate on road surface.



BELL-SHAPED FOLLOWER, cast with five concentric rings (above) was developed by Raymond Concrete Pile Co. for driving steel caissons on Mississippi River dock construction job just below New Orleans. Diameters of rings range from 33 to 54 in. to fit on



top of five sizes of caissons. View above shows follower, steel ring for hardwood driving pad, and part of Vulcan No. 0 single-acting hammer that does driving.



BENT BULLDOZER BLADE is quickly straightened by application of Simplex Util-A-Tool. Repair and maintenance set includes push-pull jack together with chains, sky-hooks and claws for pushing, pulling, holding, spreading or clamping.

HEAVY STEEL JAW suspended from a crawler crane is used by Stolte, Inc., Oakland, Calif., contractor, to pull wooden sheeting on a sewer job for the East Bay Municipal Utility District.

(Continued on page 78)

CLEVELANDS

are designed for speed and ease of handling . . . built for long, thrifty service

CLEVELANDS are extremely compact, wheel-type in design with all excess weight eliminated, with full wide crawlers, easily operated controls and an exceptionally wide range of transmission-controlled speed combinations. They give you maximum maneuverability and the best and fastest speed for all working conditions.

Finely engineered with a rugged, all-welded, unit-type construction that keeps all drive units in alignment, reduces maintenance to a minimum and makes field repairs quick and easy, CLEVELANDS deliver maximum trench yardage for long periods with real economy of operation. See your nearest CLEVELAND distributor or write direct for details and specifications.

THE CLEVELAND TRENCHER CO.
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

THE BLAW-KNOX COMPLETE PACKAGE has EVERYTHING for low cost concrete construction

IN the Blaw-Knox complete package, there's every piece of construction equipment you need to put your work on a cost-cutting assembly line basis. Profits start with Blaw-Knox Clamshell Buckets, increase as the work flows steadily step by step to the other Blaw-Knox machines . . . each one engineered to speed production and lower costs.

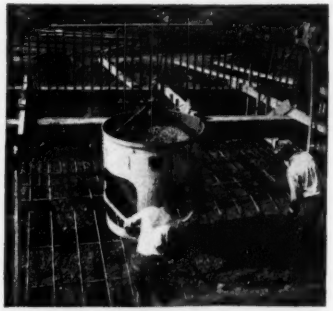
Economy-minded construction men use the Blaw-Knox ONE SOURCE package . . . it means modern design, time-saving repair and parts service, and assures a unified production set-up that operates at a profit on every job. Your Blaw-Knox distributor will give you complete details.

PORTABLE AGGREGATE BATCHING PLANTS — You get accurately batched aggregates *faster* and at lower cost with these flexible, high capacity units, developed to meet today's high speed construction demands. Designed to fit the requirements of your particular job, they are available in 2, 3 and 4 compartment styles, in capacities ranging from 100 to 120 tons. All-steel, self-cleaning storage bins with steep hopper slopes insure rapid and complete discharge. Easy set-up and take-down saves time, cuts haul costs. Beam scales or dial scales are optional.

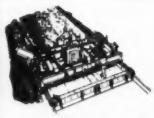
PORTABLE BULK CEMENT PLANTS — Cut your costs of handling large volumes of cement. 200 and 400 barrel sizes are furnished, with combination arrangements which double these capacities and still retain complete portability. Speedy erection and relocation eliminates lost time between jobs. Plant includes portable bin, cement weighing batcher of required size with scales, filling and discharge gates, dust cover and discharge chute; also, 50 t.p.h. enclosed type cement elevator with screw feeder and either electric motor or gas engine drive.

CENTRAL MIXING PLANTS — Concrete, batched and mixed in one plant, assures accurate, uniform batches, eliminates waste, speeds construction and keeps costs low. These high production units offered in composite bin styles with 2, 3, 4, or 5 compartments, and capacities to meet your job requirements. Weighing batcher discharges into stationary mixer or through dry batch chute into truck mixers.

BLAW-KNOX CONCRETE BUCKETS speed your work, cut concrete pouring costs. Ease of opening and closing discharge gate under full load, plus one-man operation with full or partial load, means fast, high-volume production. Roller-Gate Controllable Discharge Buckets, with exclusive discharge gate design, are available in sizes from 1 to 8 cu. yds. for normal and low slump concrete. For placing concrete under water, Tremie Type Buckets from 1 to 8 cu. yds. capacity are furnished. Double Clam-Gate Buckets are offered in 3 sizes—½, ¾ and 1 cu. yd.—for general construction work.



STEEL STREET FORMS



PRECISION SUBGRADERS

MULTIFOOTE PAVERS

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BLAW-KNOX DIVISION OF Blaw-Knox Company,
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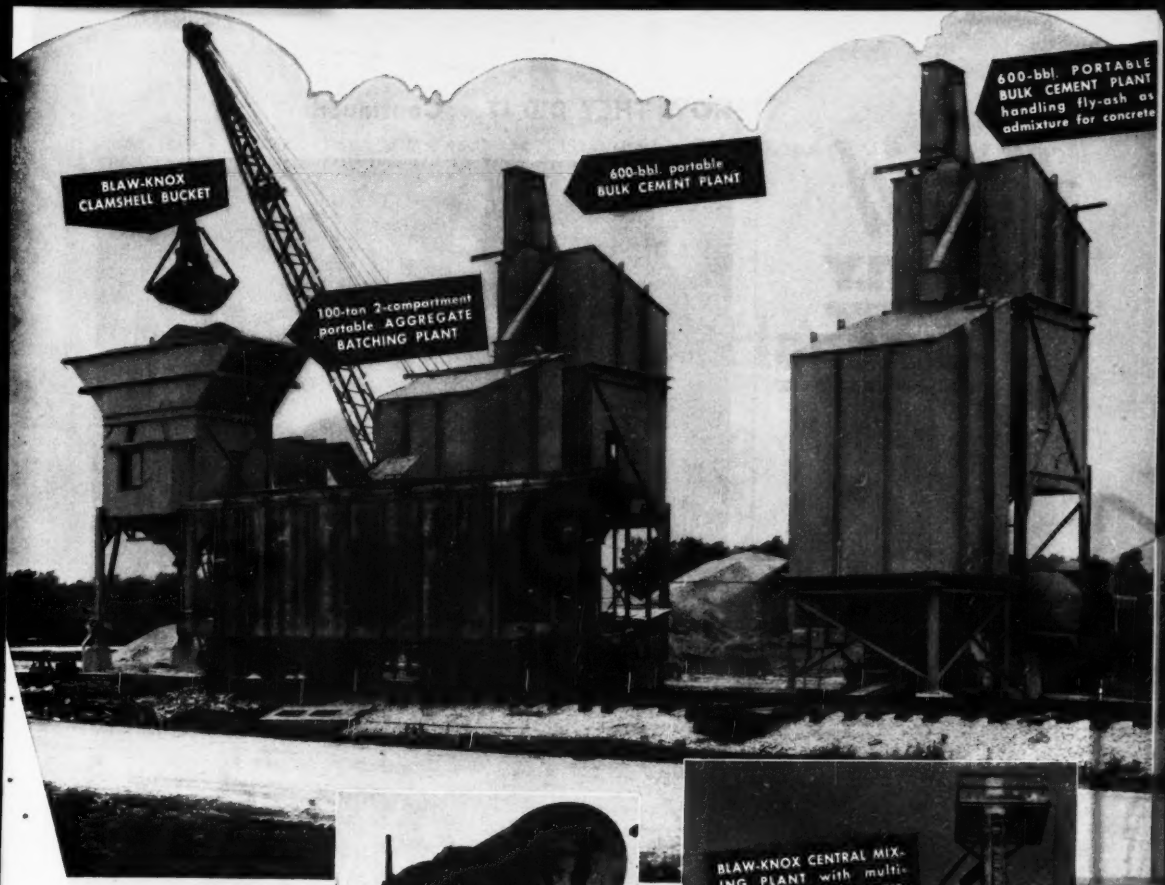
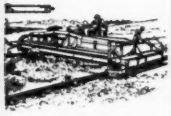

BLAW-KNOX CLAMSHELL BUCKET
100-ton 2-compartment portable AGGREGATE BATCHING PLANT
600-bbl. portable BULK CEMENT PLANT
600-bbl. PORTABLE BULK CEMENT PLANT handling fly-ash as admixture for concrete

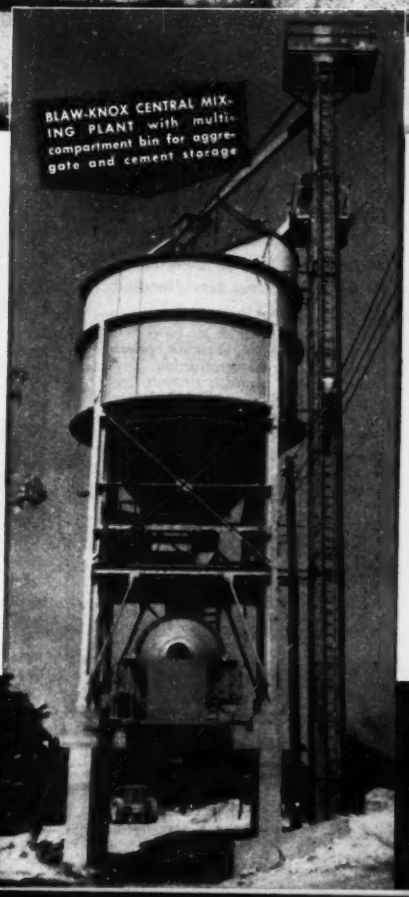
THE BLAW-KNOX HI-BOY TRUK-MIXER with the exclusive REVOLVING HOPPER, permits faster charging, faster discharging, with minimum seal maintenance. Mixes concrete thoroughly and uniformly, and discharges all the concrete in the drum, without segregation.

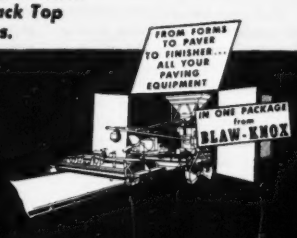


PAVING SPREADER-VIBRATORS

FINISHING MACHINES

Also: Steel Paving Forms, Truck Mixer Loading Plants, Adnun Black Top Pavers, Kinetic Mixers.





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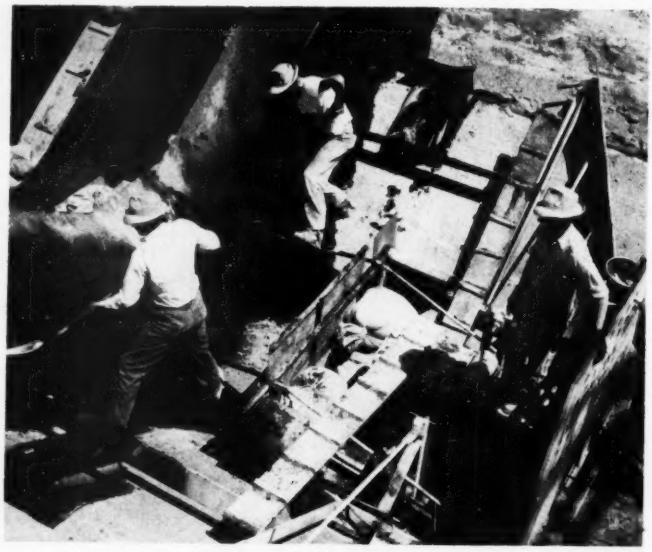
HOW THEY DID IT... Continued



ASPHALTIC CONCRETE LINING for irrigation canals on U. S. Bureau of Reclamation projects is placed by methods and equipment illustrated herewith. Mechanized canal paver consists of large guide sled or "pan" with vertical strike-off blades attached to rear and shaped to fit canal cross-section. Pan rides upon trimmed subgrade. Open space between blades and pan allows asphaltic mix to be dumped directly on subgrade ahead of blades. Hot screeds, heated by butane gas, ride directly in back of strike-off blades. Gasoline-powered winch pulls machine by cable anchored to deadmen. Hot screeds are loaded with sandbags to produce necessary compaction. Top photo shows inside of lining machine where operators are guiding asphalt mix into pan below strike-off blades. In lower photo of rear end are shown strike-off blades (1) and hot irons (2) to give surface seal, and clamshell bucket ready to deliver load of asphaltic mix.—U. S. Bureau of Reclamation Photos by A. F. Swanson

"Give us the tools..."

YOUR ONLY CHANCE of Getting Ahead

Where is the "brave new world" so glowingly promised us by the politicians during and after the war? We were told then that postwar America would live 50% better than it had before. Why has that promise faded out? Why are men today discouraged and frustrated?

We have not yet made good 1944's promises because the *American worker turns out no more in an hour now than he did in 1941.* We are getting more total production in our country – but only because we have more people working. Not because each one of us is producing more. American industry's ability to turn out more and more goods – with less of each worker's time and effort – has been stymied for eight long years.

Progress has been blocked because in some cases workers have not been willing to work as hard as they did before the war. In other cases unions restrict the use of labor-saving machines and methods. In some places obsolete building codes and ordinances prevent advances. In still other cases progress has been blocked by collusive practices between unions and manufacturers or operators.

But the biggest block to progress is the fact that our industry in the United States has been unable to provide our workers with all the new tools and equipment that they need.

Increasing productivity – that is, each one of us turning out more in each hour of work – is the key to higher living standards. Productivity depends directly upon the kind of tools workers use. His tools, more than anything else, determine how much a worker can turn out; and what his paycheck will buy depends in large part on what he turns out—not on how long or how hard he works.

Look what happened in our country in the forty years from 1900 to 1940. Productivity of the United States *more than doubled.* It doubled because:

Business investment in capital equipment gave workers new tools—tools that had three and one-half times as much power—

So—Americans' living standard rose almost 50% while the average work week was dropping from 61 to 43 hours.

Industry did continue to raise its output per man hour, even in the depressed 1930's. But it did it because, with unemployment widespread, companies used only their most efficient equipment. *Actually the great depression saw industry fall far behind in the job of providing workers with new tools.*

Then came World War II. Few new tools for peacetime industry were produced. *As a result of depression and war, the U.S. fell behind in needed investment in new industrial facilities by more than $100 billion.*

Since the war business has spent almost $60 billion for new plants and equipment –

But the greater part of that money went to *expand* production to take care of the needs of our bigger population, and to *replace* plants and equipment that were worn out and ready to be junked at the end of the war.

continued on next page

Only a small fraction of the $60 billion went to *modernize equipment* – the equipment that increases efficiency and improves productivity of the individual worker.

Right now industry is desperately trying to do the job of increasing efficiency of machines so that each worker can turn out more.

McGraw-Hill's national survey of Business' Needs for New Plants and Equipment shows that manufacturers plan right now to spend in the 5 years ahead three-quarters of their capital funds to replace and modernize facilities. The biggest part of the more than $55 billion industry plans to spend on its plants and equipment will go directly to improve efficiency of the individual.

If industry can carry through its plans – and expand them as it would like to and as it must do – the U. S. can catch up on its depression-war-time lag in progress within a few short years.

If American industry is allowed to earn the money to buy the equipment, it can raise the American standard of living 50% in our generation – in the next 25 years. No other nation can promise its people that much – and deliver on the promise.

But the promise can only be fulfilled by American industry. Wherever you turn, industry has dramatic new ways of doing things. Using oxygen by the ton, steel makers are increasing production from blast furnaces by 20%. New high-speed machine tools are doing three times the work of 1940 tools. A new coal-mining machine will multiply a miner's daily output 10 times. Diesel locomotives do the work of three steam locomotives on many jobs.

New products – and larger production of standard products – are already making their impact on American life. Two million Americans will get new television sets this year. Automatic washing machines, electric dishwashers, and home freezers are easing the daily tasks of thousands of housewives. Millions of homes that did not have them before the war now have telephones, automatic heat and refrigerators. Frozen foods, nylon clothing – these and many other things coming along now – will shape the *real* new world for Americans.

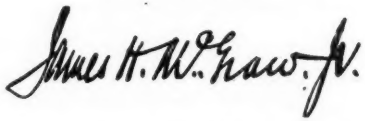
But industry can provide them only if it can keep on investing at least $15 billion a year now – and more in future years – in new plants and equipment.

Today Washington is taking a course which, if pursued, will make that investment by industry impossible. Government spending now strains our resources to the limit, and more multi-billion dollar spending proposals are being piled on. *But government spending cannot improve American living standards.* It never has, and it never will. Increasing government spending *now* will only block progress, because the government proposes to pay for its plans by taxing away the profits industry is using, and must continue to use, to improve and expand its plants and equipment – our only hope for greater worker productivity and higher living standards.

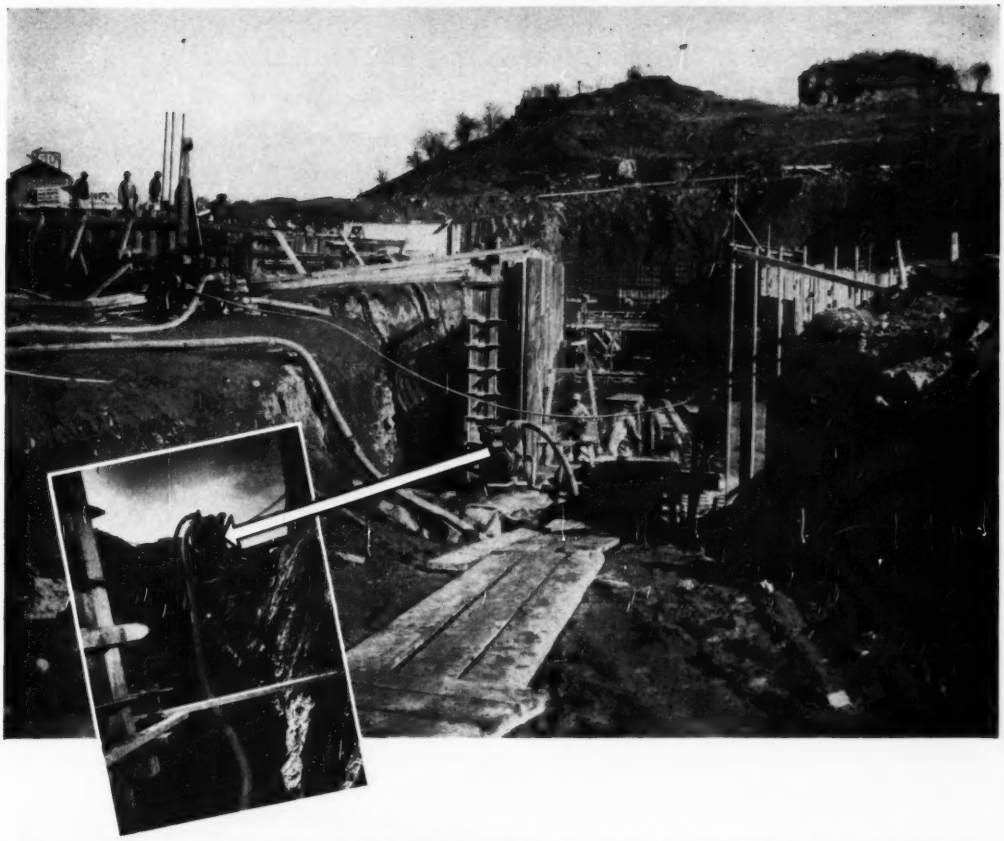
Better living can only be paid for with more production. And we can only get more production by increasing productivity – by each one of us producing more for each hour of work.

The first thing is to get the production – in peace and in war – for better living – for security. Industry is planning to provide it – and is using $13 billion of its profits this year to improve and expand its facilities.

The only sensible, the only safe national policy is to make it possible for American industry to do its job – not to terrorize private industry with proposals of ruinous taxation and paralyzing controls and threats of nationalization. For American industry is not a thing apart from the American people any more than is government. American industry is the lifeblood of the American people and whatever makes industry do its work better contributes more to the common welfare than a bureaucratic government can ever hope to do.



President, McGraw-Hill Publishing Company, Inc.



WATER MEANS TROUBLE TO A CONSTRUCTION MAN

Drainage and seepage water can be a big headache. It has to be handled in varying quantities on nearly every construction job. For instance, on the foundation work on this hillside factory building in North Bergen, New Jersey, the contractor had to contend with plenty of drainage. Mahony-Troast Construction Co., handling the job, had to keep the water down throughout a winter of snow, sleet, thaw and rain. The contractor wanted it handled without trouble and without a lot of bothersome maintenance.

On this job, as on many others, for the main pumping work this contractor used a Marlow Water Wizard Self-Priming Centrifugal Pump.

The Water Wizard never caused trouble. It never needed attention. Suction lifts varied from 18 to 27 feet and still there was never a halt in its smooth, even pumping. And when the Water Wizard got down to mud, a Marlow Mud Hog diaphragm pump joined in the drying work.

Performance like this is typical. The stamina and dependability of a Marlow Water Wizard can't be beat. It primes itself. There are no parts to jam or cause trouble. It pumps with the same high efficiency in either continuous or intermittent service. And to top it all, a Water Wizard is economical to operate.

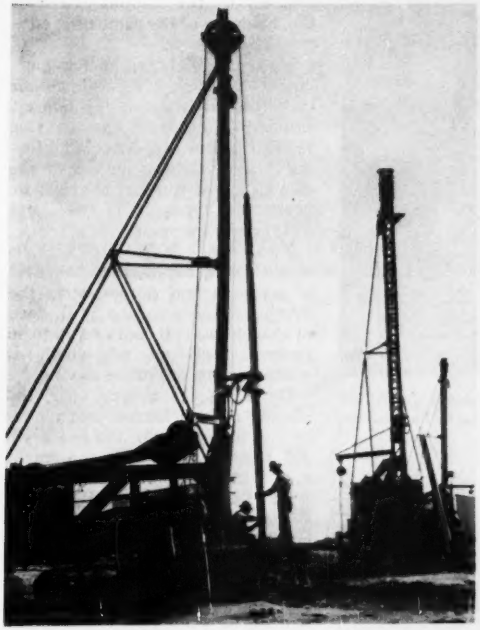
You'll find it worth your while to learn why more and more contractors rely on Marlows, the World's largest line of construction pumps. Ask your nearest Marlow distributor or write the factory.

MARLOW PUMPS
RIDGEWOOD • NEW JERSEY

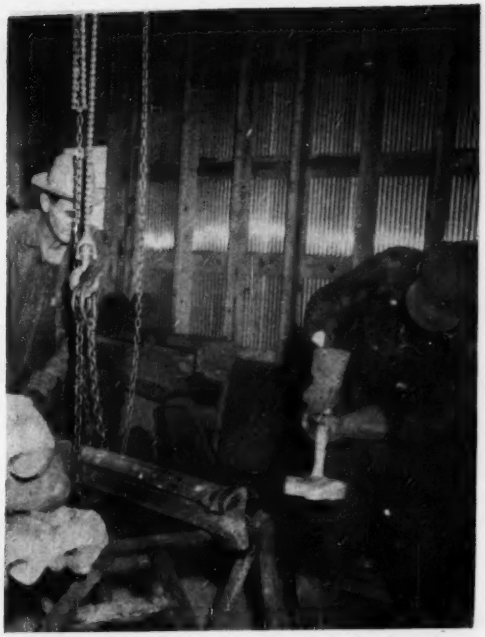
Quarry 7 Miles From Job is Start of Production of . . .

Aggregates for Bull Shoals Dam

MOUNTAIN OF LIMESTONE is source of aggregate supply for Bull Shoals Dam. Here at Flippin Quarry, 7 conveyor-belt miles away from dam, rock is reduced by two crushers to 6-in. maximum size before starting long ride to processing plant at job.



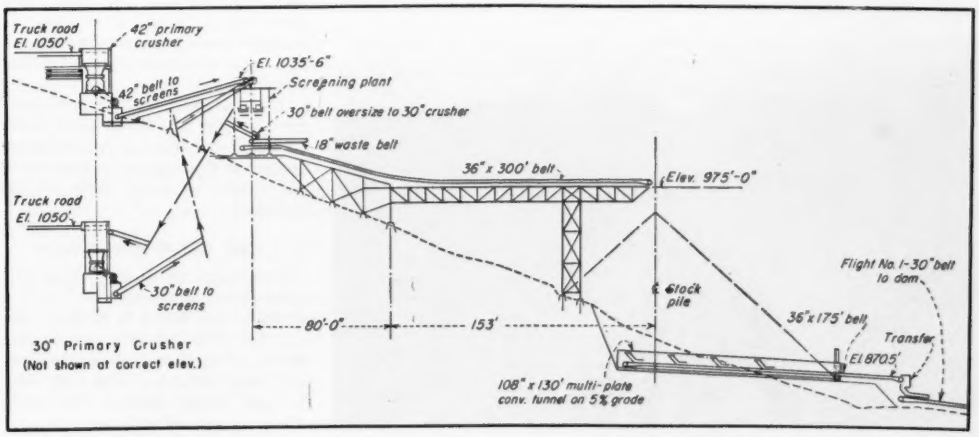
ON TOP OF QUARRY—Bucyrus-Erie 27T electric churn drills sink 9-in holes through 85-ft. of limestone. Holes are drilled 35 ft. apart in staggered rows, with rows spaced to give 30 ft. of burden. Production runs 35 cu.yd. of rock per ft. depth of hole.



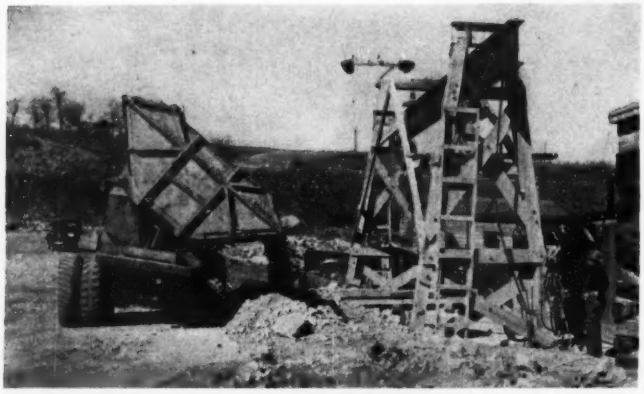
DRILL BITS are changed after 40 ft. of drilling—reshaped in a Bucyrus-Erie bit dresser, dressed by hand sledging and tempered in a water bath. Two men sharpen 20 big bits in 8 hr. One-ton chain hoist handles bits around shop.

CONCRETING OPERATIONS at Bull Shoals Dam won't be held up by any lack of crushed stone or manufactured sand aggregates. This is assured by a well organized crew of 200 men, plus ample drilling, blasting and crushing equipment which will more than meet the demands of the concrete plant at the damsite.

As reported in previous issues (See April and May 1948) Bull Shoals Dam is being built by the Corps of Engineers on White River near Mountain Home, Ark. Ozark Dam Constructors — made up of nine big contractors—hold a $22,000,000 contract for the 2,256x283-ft. gravity-section dam. Crushed stone and manufactured sand are being furnished under a $9,000,000



TWO BIG CRUSHERS reduce quarry rock to minus 6 in. at start of 7-mi. conveyor trip to dam. Big surge pile over reclaiming tunnel keeps conveyor supplied in case of quarry shutdown.



FIRST STOP is at front edge of quarry floor where 15-yd. Maxi truck dumps directly into Allis-Chalmers 42-in. gyratory crusher for reduction to minus 6-in. size. Gantry frame mounts floodlights for night-time operation.

SECOND STOP is in a 100,000-ton perpetual stockpile just below the crusher. Reclaiming tunnel under stockpile feeds quarry rock on to endless-belt conveyors reaching toward horizon. The processing plant is 7 miles over the hill.

LAST STOP is Bull Shoals Dam at far end of this 7-mi. endless-belt conveyor system which rolls along at 525 ft. per min. delivering 350 cu.yd. of stone per hr.

contract by the Flippin Materials Co., made up of the same nine contracting firms.

Big equipment, geared for maximum efficiency, is the rule rather than the exception at the quarry, situated 7 mi. from the damsite. Three big Bucyrus-Erie 29T electric drills, working on top of the 80-ft. face of quarry, churn 9-in. holes to a depth of 85 ft.—about 5 ft. below the quarry floor.

Two 6-in. B-E 27T electric churn drills, together with a fleet of scrapers and dozers, strip the overburden which runs 60 ft. deep in some areas and contains up to 40 percent rock—all of which is wasted in an adjoining ravine.

Down on the quarry floor, the blasted rock is loaded into trucks by two 3½-yd. 1201 and one 2-yd. 802 Lima cranes. This equipment soon will be supplemented with a 5-yd. Bucyrus-Erie 120B electric shovel, primarily for more economical loading.

Boulders too big for the crusher get "secondary blasting" by a 2-ton skullcracker operated by a Northwest crane at the foot of the quarry face.

Haulage of rock from quarry face to crusher—a distance of only a few hundred yards at present—is by one 25-yd. Maxi side-dump truck and three 12-yd. end-dump Euclids. Three more Maxis and three Euclids will be added later. The crusher is a 42-in. Allis-Chalmers gyratory, set for 6-in. maximum size stone.

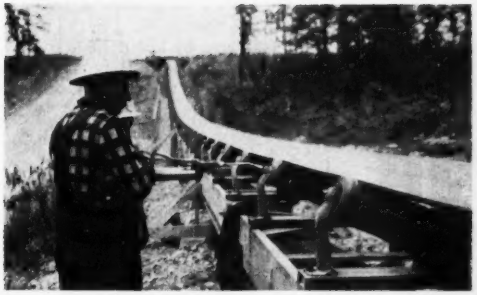
Stone from the crusher drops down by belt conveyor to a Simplicity double-deck screen. Material more than 6-in. is conveyed for further reduction to a 30-in. A-C gyratory which, in effect, is a secondary crusher. It is then returned through the screens and on to a huge stockpile over a loading tunnel.

This stockpile, with its total storage capacity of 100,000 tons, feeds on to a 7-mi. belt conveyor system ending at the aggregate processing plant on the right bank of the damsite.

Bits Get 40-ft. of Hole

Although the quarry rock is a hard limestone, each of the big drills churns 4 to 5 ft. of 9-in. hole per hr. Bits are sharpened after 40 ft. of drilling, in a 35x35-ft. drill shop near-by. One drill doctor and helper sharpen 20 bits in 8 hr.

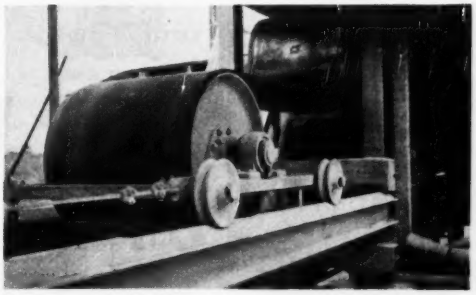
The bits are heated to a cherry red in a diesel-oil furnace. They



7-MILE CONVEYOR is kept running by patrolmen, part of whose job is to lubricate some 14,000 idlers.

DANGEROUS JOB—Keeping a firm grip on safety line, workman breaks up rock jam in crusher by snatch hook and hand hoist suspended from gantry beam above.

TAKE-UPS on each of 21 flights on main conveyor from quarry to dam keep belts tight. Most take-ups are horizontal type shown here, with idler pulleys on tracks held taut by cable from counterweight in tower.



HORIZONTAL TAKE-UPS are simply big idler pulleys riding on carriages. Counterweight line from tower keeps belt in tension.

are reshaped in a Bucyrus-Erie bit dresser, and cutting edges are trued up by hand sledging. They are then reheated for 5 min. and tempered in water. Bits are handled from furnace to bit dresser, to anvil, to furnace and to tempering bath by a 1-ton Budgit hoist mounted on a revolving shaft in the center of the shop.

The 9-in. by 85-ft. holes are being drilled for a 30-ft. burden. They are spaced 33 ft. apart in multiple rows, staggered. Hercules dynamite, used for all blasting, is estimated to run 3,000,000 lb. for the entire job, including excavation at the damsite.

Average loading per hole includes about 200 lb. of 65-percent

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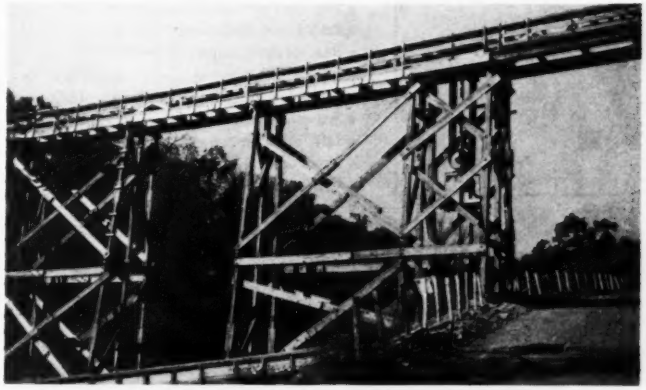


CONVENTIONAL vertical type of take-up is used on flights carried on trestle, such as this case where conveyor crosses ravine and access road near dam.

VERSATILE PROFIT-MAKER

The New

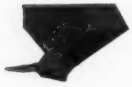
SCOOP

MODEL "C"

Loading is easier, more practical. High ground clearance and shorter turning radius.

LIFT FORK

CRANE BOOM



CONCRETE HOPPER

FERTILIZER FORK

Lifts 4,000 pounds. Hoisting power is taken from the front of the engine to permit uninterrupted hoisting.

DIESEL POWER AVAILABLE

One machine—6 jobs

Built at the request of contractors, the Wagnermobile Scoop Model "C" saves time, labor costs by its many efficient uses.

- Transports, elevates and pours concrete.
- Shovels and loads dirt, etc.
- Lifts and stacks lumber and other materials.
- Handles fertilizer, hay and straw.
- Lifts heavy equipment.
- Reaches extra height.

Attachments:

- ¾ cubic yard concrete hopper.
- Scoops in 5 sizes.
- Lift fork with 2, 3 or 4 prongs.
- Special fork with tines for fertilizer, or hay.
- Crane boom.
- Track extensions up to a total of 26 ft.

These six attachments, quickly changed mean profit on the job. Wagnermobile Scoop helps you complete contracts faster.

Hydraulic controls.
Power steering-maneuverability.
Planetary drive—more power.
4 speeds forward, 4 speeds reverse.

We reserve the right to make improvements in design and specifications without notice.

MIXERMOBILE MANUFACTURERS

6855 N. E. HALSEY STREET, PORTLAND 16, OREGON

(Continued from preceding page)

strength Gelamite No. 1 in the bottom, followed by about 1,800 lb. of 50-percent strength Hercomite B, extending up to within 20 ft. of the top of the hole.

Maximum number of holes fired at one time, to date, is 40. Millisecond delay caps, and Primacord in the holes are fired from a 440-v. power line. The firing sequence is a variable combination of holes, depending on blasting requirements.

Rock Production Is High

Production of rock runs about 35 cu.yd. per ft. of drilled hole and 1.4 cu.yd. per lb. of dynamite. One charge of 54,000 lb. of dynamite produced an estimated 75,000 cu.yd. (solid measurement) of rock.

The 6-in. holes in the rock overburden are loaded with a low-strength bag powder, producing from 2 to 2½ yd. of rock per lb. of powder. Holes are sprung at the bottom with a light charge before placing the main charge.

From the primary processing plant at the quarry, all aggregates are transported over 7 mi. of 30-in. belt conveyor to the final processing plant at the dam. This conveyor is broken up into 21 flights from 600 to 2,800 ft. long, each powered by a 100-hp. electric motor. Operating belt speed is 525 fpm. Elaborate control systems have been established for the conveyor that permit patrolmen to stop any flight by pulling a switch at its motor, which automatically stops every flight behind, thus preventing piling up of material. Once stopped, no flight or series of flights can be started except by the chief operator at the dam, a well-founded safety precaution.

The processing plants were built substantially as outlined in "Construction Plans for Bull Shoals Dam," published in CONSTRUCTION METHODS in May 1948. The accompanying drawings show the flow diagrams and general layout of the two plants at the quarry and the dam.

Belt conveyors on the job total up to 41,831 ft., for which 87,210 ft. of belting, or 16½ mi., was purchased. All belting is Goodyear, from 18 to 42 in. wide, running on some 14,000 idlers, mostly Hewitt-Robins.

The processing plants are made up largely of Allis-Chalmers and Symons crushers and hammer mills and Simplicity screens. From

a 10,000-ton raw storage pile at the dam end of the main conveyor, the material passes through two screening towers for production of four sizes of coarse aggregate, stored over a common reclaiming tunnel. The sand plant is designed to produce three sizes of fines, to be blended in proportion. However, experience has shown this procedure to be unnecessary, so naturally-graded sand only is being made.

The aggregate cooling system installed to eliminate use of ice in the mix, has worked fairly satisfactorily. As described in the previous article, the coarse aggregates are cooled by immersing in chilled water in four silos. Sand is cooled by running through a heat exchanger, simply vertical tanks containing pipes surrounded by cold water. Some trouble has been experienced in getting a uniform flow of sand through the apparatus. If the specification requirements for 65-deg. concrete at the forms can be met during hot weather without cooling the sand, use of the heat exchangers will be abandoned. Otherwise, alterations will be necessary in the sand cooling process.

Water for the cooling plant is chilled to 35 deg. by three Vilter ammonia ice-making units with a total capacity of 1,690 tons per day. Coarse aggregates are retained in two banks of 120-yd. silos, four to each bank. The banks are operated alternately, with filling, detention and emptying operations in each bank requiring about 2 hr.

As concrete placing did not get under way until last fall, the cooling plant has not yet been given a full workout. In fact, so far, cooling the aggregates has given way to protection for wintertime concreting. This includes heating the mixing water if necessary, circulating river water through the aggregate cooling bins to remove frost and protection of fresh concrete with heavy cotton mats.

No provisions are made for cold weather concreting requiring heating of the aggregates and steam-curing the concrete. It is considered cheaper to discontinue concreting an occasional shift or two during freezing weather.

Engineers on the Job

Bull Shoals Dam is being built under the supervision of Col. Thomas A. Lane, Little Rock district engineer. Lt. Col. Kenneth

(Continued on page 89)

PROFIT AT BOTH ENDS

DUO-WAY Scoop

Dozer at one end... Scoop at the other

Both labor and equipment costs are cut by this versatile machine. It performs four operations: loader, dozer, truck and tractor—all in one. More profit.

An 84-inch, full size dozer blade dozes out a bank...then turns around...

1 cubic yard scoop at the other end scoops up the loose dirt, lifts and loads it.

Dozer blade: 3000 lbs. down pressure can be applied. Scoop can be filled on other end for ballast.

Duo-way Scoop features:

- Driver in sidesaddle position for all around vision and perfect control.
- Planetary drive for complete power output.
- All hydraulic controlled.
- Special tilt control track tilts 12° back, 9° forward.
- Top section folds down to 9 ft. 6 in. for low road clearance.
- Highway speed up to 25 m.p.h.
- 4 speeds forward, 4 speeds reverse.

Four operations performed by one machine, the Duo-way Scoop. It means more profit on every job.

Scoop lifts to a height of 14 ft. (easy loading). Additional height available by special order.

DIESEL POWER AVAILABLE

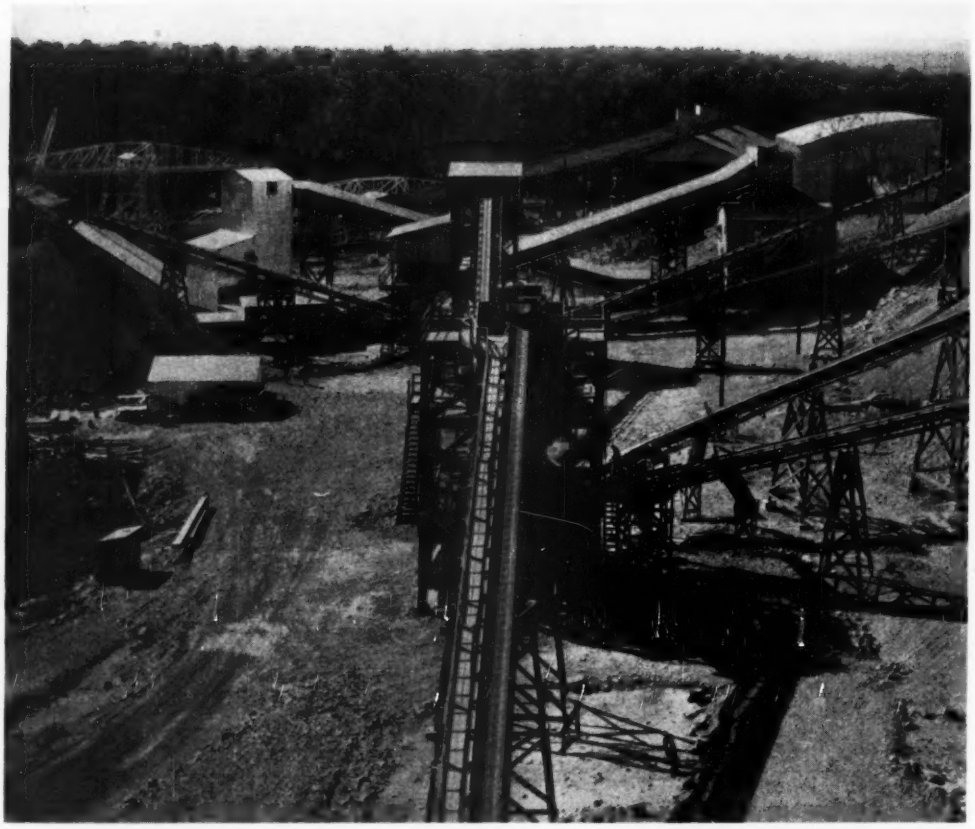
Write today for literature and address of your nearest dealer.

We reserve the right to make improvements in design and specifications without notice.

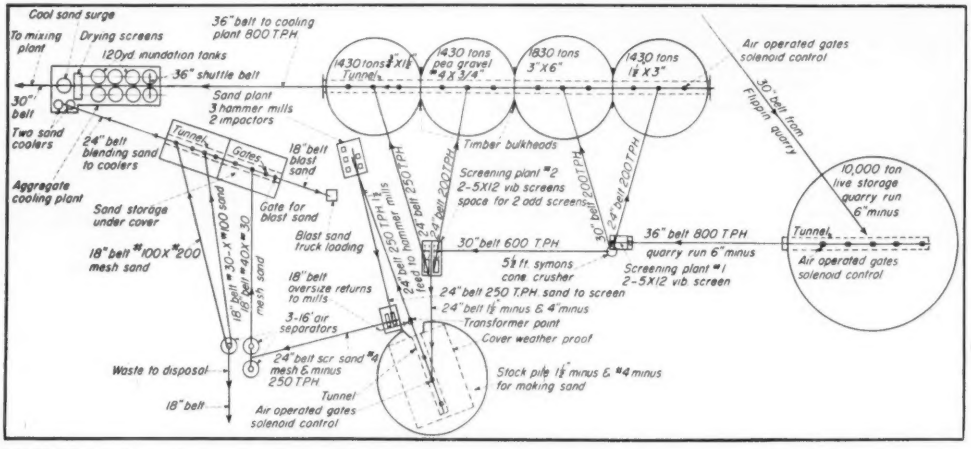
MIXERMOBILE MANUFACTURERS

WAGNERMOBILE

6855 N. E. HALSEY STREET, PORTLAND 16, OREGON



AGGREGATE processing plant above right abutment of dam is laid out for compact, straight-line operation. From raw storage conveyor in foreground, materials pass through two crushing and screening towers for separation into four sizes of coarse stone stored over common reclaiming tunnel at right. Towers at each side of second screening tower are sand plants. Sand blending station, for process now abandoned and curved-roof cooling plant are in right background. Concrete-placing cranes on trestle can be seen at upper left. Mixer plant is on hillside beyond and below cooling plant, set just above trestle track level.


Cool sand surge
To mixing plant
Drying screens
120yd. inundation tanks
36" belt to cooling plant 800 T.P.H.
36" shuttle belt
30" belt
Two sand coolers
Sand plant 3 hammer mills 2 impactors
24" belt blending sand to coolers
Tunnel
Gates
18" belt blast sand
Aggregate cooling plant
Sand storage under cover
Gate for blast sand
Blast sand truck loading
18" belt #100 X #200 mesh sand
18" belt #30 - X #100 mesh sand
18" belt #30 - X #30 mesh sand
18" belt oversize returns to mills
3-16' air separators
Waste to disposal
24" belt scr. sand #8 mesh & minus 250 T.P.H.
18" belt
Tunnel
Air operated gates solenoid control
1430 tons 3" X 1½"
1430 tons pea gravel #4 X 3/4"
1830 tons 3" X 6"
1430 tons 1½" X 3"
Timber bulkheads
Screening plant #2 2-5X12 vib screens space for 2 add screens
24" belt 200 T.P.H.
24" belt 250 T.P.H. to hammer mills
30" belt 600 T.P.H.
5½ ft. symons cone crusher
24" belt 250 T.P.H. sand to screen
24" belt 1½ minus & 4" minus
Transformer point
Cover weather proof
Stock pile 1½ minus & #4 minus for making sand
Air operated gates solenoid control
30" belt from Flapjin quarry
10,000 ton live storage quarry run 6" minus
36" belt 800 T.P.H.
quarry run 6" minus
Screening plant #1 2-5X12 vib. screen
Tunnel
Air operated gates solenoid control

COMPACT LAYOUT of aggregate processing plant at dam permits straight-line operations. Sand blending plant shown here has been abandoned as procedure was found unnecessary; all extreme fines are removed by air separators. Aggregate cooling plant, where stone is dunked in cold water, is at upper left. Sand coolers will be eliminated if possible.

(Continued from page 87)

H. Newton is executive officer. John L. Kemple is project engineer, succeeding Ralph Johnson who resigned March 1 to go with the Atomic Energy Commission. L. F. Sherman and R. F. House are assistant project engineers. Others in charge include: R. M. Cami, field office engineer; D. H. Basgen, inspection; S. A. Myrick, concrete control; J. D. Lunsford, layout and surveys and R. E. Whitla, foundations.

For the contractors, Harvey Slocum is project engineer; Joe Shawver, quarry superintendent, assisted by H. R. Houchins and C. W. Kerns; E. Skinnarland, trestle superintendent, and Ed. Shipp, in charge of all operations in the hole. Ozark Dam Constructors is made up of Brown & Root, Inc., Houston (sponsors); Morrison - Knudsen Co., Inc., Boise, Idaho; Wunderlich Contracting Co., Jefferson City, Mo.; Peter Kiewit Sons Co., Omaha; J. C. Maguire & Co., Los Angeles; Winston Bros. Co., Minneapolis; David G. Gordon, Denver; Condon - Cunningham Co., Omaha, and Chas. H. Tompkins Co., Washington, D. C.

COMING SOON — Concrete Placing at Bull Shoals Dam

Legal Decisions Concerning Construction

Formerly Tractor Conn

The Non-Competing Agreement

"I'LL PAY YOU $50,000 for your building business as a going concern," John Doe suggests.

"And I'll do better than that. I'll sell you my business for $45,000 if you'll agree not to engage in the same business in this city in competition with me," the builder counters. Doe accepts this proposition, and the transfer is completed.

Is such an agreement not to compete binding, or is it void as being in restraint of trade?

On this point the weight of authority in the American courts is

(Continued on page 90)

Parmanco

MECHANICAL FEED
HORIZONTAL DRILL
WITH TRACTION DRIVE

Ten years of field test has proven that our power-feed design of direct, transmission and worm gearing with two-speed control will not only cut shot hole drilling time in half but also eliminates costly maintenance delays. V-belt drive to the power-feed with an additional ample clutch in that assembly gives absolute control of a drilling speed of two to three feet per minute with a retrieving speed of twenty-four feet per minute.

The Parmanco Horizontal is adapted to all forms of high-wall drilling, will handle a six-inch auger up to a distance of sixty feet or more and, by use of our patented augers with interrupted flights and secondary cutters, will drill an absolutely clean hole with a minimum of torque. It permits the drilling of a controlled-angle hole which makes possible a great saving of explosives through the cantilever effect of this controlled-angle drilled hole.

EFFICIENT STRIPPING STARTS WITH EFFICIENT DRILLING

PARIS MANUFACTURING COMPANY
PARIS, ILLINOIS

CHOOSE
"QUICK-WAYS"
REG. U. S. PAT. OFF.
FOR SURE PROFITS

In all power shovel applications, capacity and utility are essentials. A truck shovel must have high speed mobility, be immediately convertible, and have adequate capacity to be economical on every job. A "QUICK-WAY" has all these fundamentals plus a long list of others.

"QUICK-WAYS" are designed for full truck speed, on or off the highway. Mounted on any standard truck, the working parts provide perfect operating balance for the truck shovel. All-steel construction gives built-in strength and lightness for maximum capacity and stability.

You get more utility out of a "QUICK-WAY" fully equipped, than any comparable equipment. Each "QUICK-WAY" is easily converted in minutes from Shovel to Crane, Dragline, Clamshell, Pile Drive, Scoop, Trench Hoe, Backfiller, etc. Buy only the attachments you want; your "QUICK-WAY" does more jobs better.

Parts are rugged and simple, requiring a minimum of servicing and having proved ability to take a life long beating. Many interchangeable parts and easy accessibility simplify maintenance and repair. From engine to attachment, every "QUICK-WAY" part will deliver its capacity rating and more.

The essentials built into every "QUICK-WAY" mean sure profits on a small investment; economical to buy, economical to use, it's one of the most useful machines you can own. There's a "QUICK-WAY" owner near you; ask HIM.

MODEL E: 4/10 cu. yd. capacity, mounts on any standard 5-ton truck.
MODEL J: 1/4 cu. yd. capacity, mounts on any standard 1½-ton truck.

"QUICK-WAY"
TRUCK SHOVEL COMPANY
DENVER, COLORADO
Worldwide Distributor Sales and Service
PIONEER IN POWER SHOVELS FOR TRUCK MOUNTING AND STILL THE LEADER

(Continued from page 89)

that such an agreement is valid and enforceable, so long as it is reasonable.

In an Ohio case, however, the evidence showed that Richard Roe sold a building business to a contractor. The agreement was put in writing, signed by the parties, and the sale practically completed.

"I never thought of it at the time, but I should have had an agreement from you not to compete with me," the contractor suggested a few days later.

"I'll not stick on that, and I'll agree right now not to carry on any building business in competition with you," Richard Roe agreed, and the Iowa courts were called upon to decide whether the later agreement was binding.

The decision (reported in 75 Iowa, 173) was that the agreement was not binding, as the sale had been completed and Richard Roe received no benefit or "consideration" from the contractor to make the agreement an enforceable one.

Delivery Time

THE CONTRACTOR had insured his stock in the Pyro Insurance Company. At least the premium had been paid, the application accepted, and the Company forwarded the policy to the local agent, with instructions to deliver it.

The agent took the policy out of the post office and decided to deliver it on his way to his own office. But with a howling siren the fire engine passed him on the way, and when he arrived at the contractor's place of business, he found that the fire was beyond control.

"It's a lucky thing the policy did not arrive an hour earlier," commented the agent and returned it to the insurance company. The contractor sued and the company defended on the ground that there had been no legal delivery of the policy.

"When you forwarded the policy to your agent for delivery to me there was nothing for me to do except to receive it. The agent held the policy for me, and there was a complete and binding contract," the contractor contended.

This point came before the Massachusetts Supreme Court in the case of Wheeler v. Insurance Company, 131 Mass. 1, where the Court ruled in the contractor's favor; and there are Michigan, Nebraska, New Hampshire, New Jersey and Ohio rulings to the same effect.

Temperatures over 120°, 18-hour operation, 10 to 15 trips per hour, 15 cu. yds. per load, hauls up to 1800 ft. That's the story of six Terra Cobras on 3½ million cu. yd. sand moving levy job near Indio, California.

HOT or COLD TERRA COBRAS KEEP THE EARTH MOVING

On part of the seventy million cubic yard Garrison Dam project northwest of Bismarck, North Dakota, 16 Wooldridge Terra Cobras continued strip and fill operations in temperatures under 20° below zero!

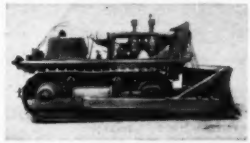
In mud or dry sand . . . in soft loam or hardpan . . . hundreds of powerful 200 hp Terra Cobras are daily proving their ability to keep the earth moving in every season. They'll maneuver in tight places, work safely close up to a shoulder, load fast without stopping and barrel along through the haul at top speed over rough ground or highway. They'll spread smoothly or dump in response to feather-touch controls . . . then whip back for another load. Engineered for continuous service, Terra Cobras have the built-in ruggedness and dependability required for year-around clock-around operation. On long or short hauls, more yardage per hour PLUS more hours on the job add up to the profits every contractor wants. For complete details on the Terra Cobra, contact your nearest Wooldridge Distributor. Prompt delivery is assured by placing your orders early.

WOOLDRIDGE MANUFACTURING CO.
Sunnyvale, California, U.S.A.

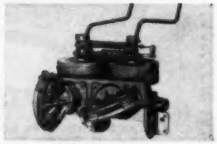
EARTH-MOVING EQUIPMENT
WOOLDRIDGE

SCRAPERS: Bolling Bowl and Terra Clipper Scrapers from 7.5 to 27.5 cu. yd. heaped capacities.

RIPPERS: Three models: for extra heavy, standard, or light duty.



BULLDOZERS and Trailbuilders for all standard makes of tractors.



POWER CONTROL UNITS: Two-drum winches for use with all standard tractors.

PROVED AND APPROVED FOR EVERY TYPE OF EARTH-MOVING JOB

Specify the NEW PLYFORM Concrete Form Panel

GENUINE DOUGLAS FIR PLYWOOD
PLYFORM
CONCRETE FORM PANEL
INTERIOR-TYPE GRADE B-B
D.F.P.A. INSPECTED

. . . for Smooth, Fin-Free Concrete Surfaces

*The highly moisture-resistant (but not waterproof) glues used in PlyForm permit multiple re-use of panels (as many as 10 to 15 are not unusual). For the greatest possible panel re-use, however, specify Exterior-type Concrete Form grade of Douglas fir plywood—bonded with completely waterproof phenolic resin adhesive. For special architectural concrete, requiring the highest possible finish, the architect or contractor may specify Exterior-type or Interior-type Douglas fir plywood in grades having "A" (Sound) face veneer—or one of the new plastic-surfaced panels.

PLYFORM—the multiple re-use concrete form panel of Douglas fir plywood — is now manufactured in strict accordance with the new grade specifications set forth in U. S. Commercial Standard CS45-48. Both faces are of B (Solid) veneer—smooth and firm, meeting virtually all concrete requirements.*

Outstanding advantages offered by the NEW PlyForm include:

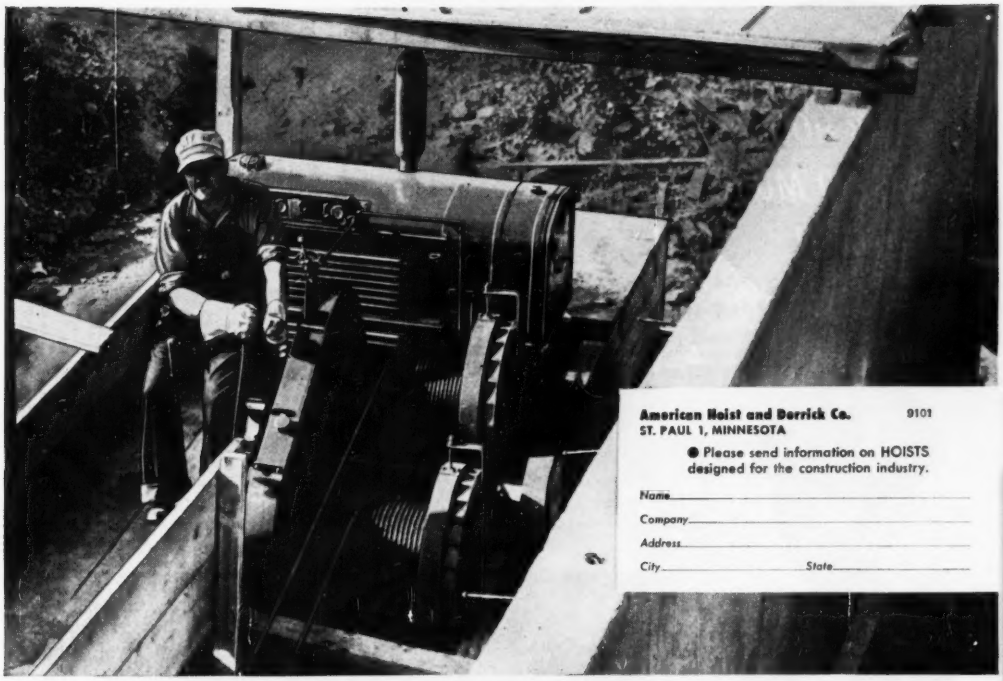
- PlyForm forms may be re-used again and again; they're more economical.
- PlyForm produces smooth surfaces, reducing finishing time and cost.
- PlyForm panels are strong, rigid—yet light and easy to handle.
- PlyForm's large panel size covers quickly, economically.
- PlyForm forms are puncture-proof, water and mortar tight.
- PlyForm offers superior nail-holding qualities.
- PlyForm is easy to work by hand or with power tools.
- PlyForm provides form sheathing and lining in one material.*

BOOKLETS FOR YOU!

Two booklets: "The New PlyForm" and "Concrete Forms of Douglas Fir Plywood" are now available. They will help you gain the full advantages offered by Douglas fir plywood concrete form panels. Write the Douglas Fir Plywood Association office nearest you: Tacoma Building, Tacoma 2, Washington; 1232 Shoreham Building, Washington 5, D. C.; 848 Daily News Building, Chicago 6; The 500 Fifth Avenue Building, New York City 18

Douglas Fir PLYWOOD

LARGE, LIGHT, STRONG *Real Wood* Panels



American Hoist and Derrick Co. 9101
ST. PAUL 1, MINNESOTA

● Please send information on HOISTS designed for the construction industry.

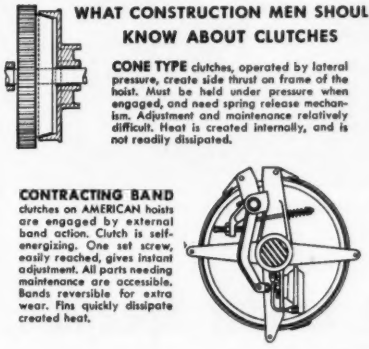
Name_____

Company_____

Address_____

City_____ State_____

The hoist that delivers in the clutch



WHAT CONSTRUCTION MEN SHOULD KNOW ABOUT CLUTCHES

CONE TYPE clutches, operated by lateral pressure, create side thrust on frame of the hoist. Must be held under pressure when engaged, and need spring release mechanism. Adjustment and maintenance relatively difficult. Heat is created internally, and is not readily dissipated.

CONTRACTING BAND clutches on AMERICAN hoists are engaged by external band action. Clutch is self-energizing. One set screw, easily reached, gives instant adjustment. All parts needing maintenance are accessible. Bands reversible for extra wear. Fins quickly dissipate created heat.

When the chips are down, and you have to call on men and machines for "impossible" performance . . . it's a pleasure to own an AMERICAN hoist. In that kind of a situation, you'll notice some amazing differences in the way a hoist can behave. First—you'll notice extra production without a sign of strain. Second—an effortless, precise operation that keeps the operator fresh and rested. Third—your AMERICAN hoist stays cool and quiet while another may be smoking hot, noisy and seeming to labor in every part.

The reasons? There are many . . . but important as any is the AMERICAN hoist *friction clutch*. It's an external, contracting band mechanism. Wonderfully smooth, instantly responsive . . . and always tuned to "concert pitch", because repair and maintenance are simple, quick and easy.

Want to find out how such a hoist fits *your* business? Mail coupon today, for literature telling the story.

American Hoist
and DERRICK COMPANY
St. Paul 1, Minnesota

Plant No. 2: So. Kearny, N.J. • *Sales Offices:* NEW YORK, PITTSBURGH, CHICAGO

THE WIDE LINE OF AMERICAN HOISTS OFFERS THE RIGHT SIZE, THE RIGHT TYPE, THE RIGHT POWER, FOR ANY JOB

Utility Hoist
800 lbs. S.L.P.

Single Drum Hoist
2,500 lbs. S.L.P.

Double Drum Hoist
7,500 lbs. S.L.P.

Three Drum Hoist
10,000 lbs. S.L.P.

Four Drum Steam Hoist
25,000 lbs. S.L.P.

Three Drum Hoist
40,000 lbs. S.L.P.

NO OTHER GRAB HOOK SAVES SO MUCH TIME!

1. Slip the pin through the clevis and chain

2. Spread the cotter

... and you're ready to put this grab hook to work!

It's a rugged, heat-treated drop-forged hook with a quick-fastening jaw that does away with shackling ... cold-shutting .. cutting, bending and rewelding chain.

Safer, too ... stronger than ordinary grabs, Laughlin's Clevis Grab Hook also has a forged housing that protects hands from cotter pin.

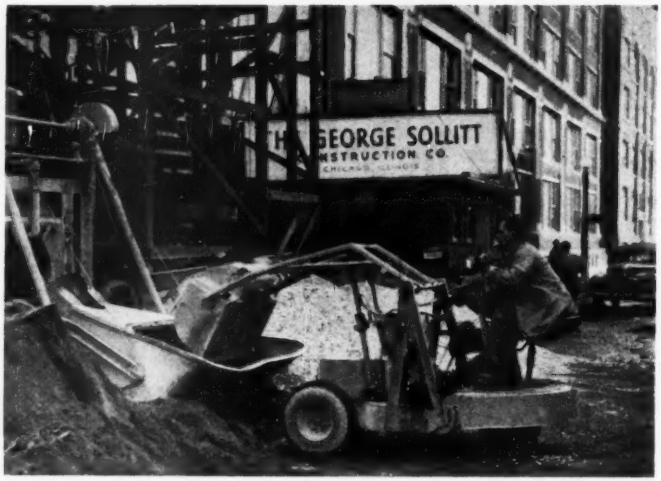
No other grab hook saves so much time ... so *safely!*

Write for Laughlin's Catalog 145 ... data book of the fitting industry. THE THOMAS LAUGHLIN COMPANY, DEPT. I, PORTLAND 6, MAINE.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP FORGED WIRE ROPE AND CHAIN FITTINGS

READY AND WAITING, fast-moving front-end loader will dump this bucketful as soon as mixer drops its emptied skip.



TUG ON RELEASE LINE trips bucket. When lowered to ground, bucket locks automatically in charging position.

Mobile Loader Speeds Skip-Charging Job

A SELF-PROPELLED three-wheel loader featuring speed and maneuverability replaced three wheelbarrowmen on stone and two on sand in charging a 16S mixer for the George Sollitt Construction Co. on a three-story Chicago building. The loader filled the skip faster than the mixer could turn out 1½-min. batches. It was waiting with a full bucket (6 cu. ft.) each time the mixer skip hit the ground.

Hoist operation, in combination with mixing and discharging time, controlled concreting speed on the job. Each concrete batch filled

three buggies. No time was lost at the skip-charging end. On the third floor, the concrete crew completed 80 yd. in 7½ hr. on one day and 70 yd. in 7 hr. the next day.

Christened the Scooter-Loader by the Arrow Contractors Equipment Co., Chicago, which designed it, the new machine operates its front-end loader with two hydraulic pistons. An air-cooled 9-hp. gasoline engine powers both the hydraulic pump and the front drive wheels. A third wheel at the rear steers the machine and turns it in less than its own length. Four forward speeds and one reverse give flexible control.

On the Sollitt job, the operator filled the scoop by dropping it to charging position and moving forward into the pile of material. A tug on a release line dumped the load into the mixer skip. Chicago union rules have assigned operation of the machine to the laborers.

Metal Studs "Fired" Into Concrete

FOR DRIVING METAL STUDS into 8½-in. concrete ceiling to hold 2x3-in. wood joists, contractor for office remodeling job requiring dropped ceilings of acoustic board uses Mine Safety Appliances Co. velocity-power tool which operates by firing blank cartridges. Detonation of powder charge drives stud through wood joist and anchors it in concrete. This method obviated need for use of star drill. Spring-loaded safety arm prevents accidental discharge by pulling firing pin away from cartridge. Stud is "fired" when barrel of tool is held solidly against material and pushed in sharply.

here's news!

CONSTRUCTION COSTS GOING DOWN!

AMAZING DRIVE-IT TOOL SAVES HOURS AND DOLLARS ON COMMON FASTENING JOBS!

You ring up dollars of savings and

Over 40 different sizes and types of unthreaded studpins available...

Extra Profits in the Palm of your Hand!

for Instance..

NO DRILLING!

PARTITIONS AND FIXED EQUIPMENT. It's easy work setting a studpin every 30 seconds.

NO OUTSIDE POWER!

AIR CONDITIONING AND HEATING DUCTS. One studpin holds 2000-3000 pounds direct pull.

TRIPLE SAFE!

ELECTRICAL CONDUITS. You'll save a dollar for every junction box fastened by DRIVE-IT.

It's headline news! DRIVE-IT saves *money* by saving *time* . . . hours, days and even *weeks* on big jobs. DRIVE-IT sets studpins in steel, concrete or wood . . . "nails" them to these materials with a *12-ton* punch! A small power charge provides the "muscle" . . . and does it *with perfect safety.*

Over 40 different sizes and types of threaded and unthreaded studpins available... plus a choice of charges for "controlled power" on the job.

You ring up dollars of savings and spare your workers needless fatigue by fastening with DRIVE-IT. It is the *original* powder-powered construction tool especially developed for concrete fastening work.

Write today for the whole amazing story!

POWDER-POWER TOOL CORPORATION
0704 S. W. Woods St. Portland 1, Oregon

DON'T DRILL IT— DRIVE-IT POWDER-POWER TOOL

DRIVE-IT

THE MODERN MIRACLE TOOL

It takes High Strength Steels

to keep equipment like this on the job

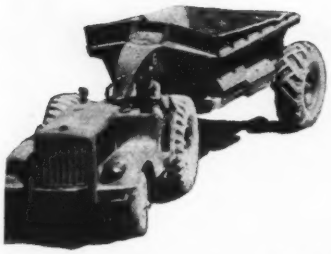
● The world's biggest, toughest, most powerful and fastest operating construction equipment is made in America.

When it went overseas during the war and showed what it could do, foreign engineers gasped in amazement.

The unusual thing about these American-made heavy-duty power shovels, bulldozers, scrapers, trailer trucks and other mechanical earth-movers is not solely their ability to move so fast and handle record-breaking tonnages so easily, but the fact that they can keep on doing the seemingly impossible day after day.

The secret of their extraordinary stamina is the widespread use of high strength steels in parts that take a beating.

By using stronger, tougher steels like U·S·S COR-TEN, U·S·S MAN-TEN or U·S·S MANGANESE-NICKEL-COPPER in bodies, frames, and structural members, equipment builders have been able to attain super-strength where needed, have added unusual resistance to shock, abrasion, wear and fatigue. And frequently, with the experienced help of our metallurgists, they have, at the same time, reduced deadweight and lowered manufacturing costs.



Here's why it pays to use U·S·S High Strength Steels

1. With rolled U·S·S High Strength Steels you can increase strength and rigidity—without increasing weight.
2. You can reduce weight at low cost—without reducing ability to withstand maximum requirements of earth-moving equipment.
3. Their use insures higher resistance to shock, impact, wear and atmospheric corrosion.
4. Their formability and weldability make fast, easy fabrication possible.
5. They have behind them a record of successful application unapproached by any other steel of similar type.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO · CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S MANGANESE-NICKEL-COPPER

9-900

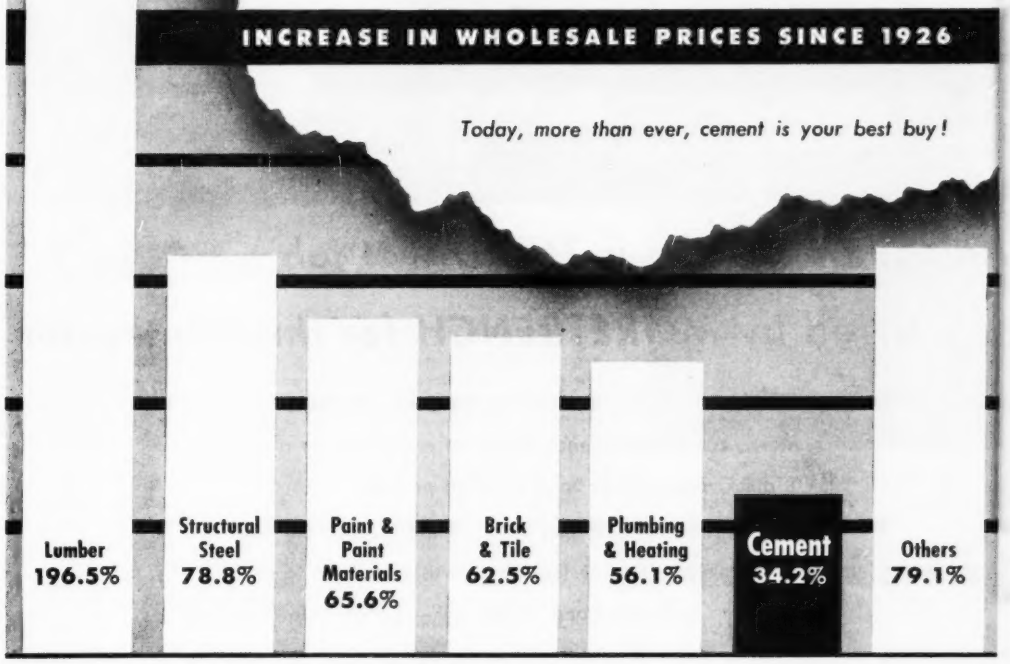
UNITED STATES STEEL

Cement—best buy in building materials!

A glance at the chart tells the story. Since 1926 cement has had a smaller increase in wholesale price than *any other building material.*

These figures are from the Bureau of Labor Statistics as of February, 1949. They re-emphasize a point of primary importance to every man in the building trades:

Cement is CHEAP. Cement gives you MORE for your money!


INCREASE IN WHOLESALE PRICES SINCE 1926
Today, more than ever, cement is your best buy!
Lumber 196.5%
Structural Steel 78.8%
Paint & Paint Materials 65.6%
Brick & Tile 62.5%
Plumbing & Heating 56.1%
Cement 34.2%
Others 79.1%

Cumberland

PORTLAND CEMENT COMPANY

Chattanooga Bank Building • • Chattanooga 2, Tenn.

Portland — High Early Strength — Air Entraining — Masonry

Cumberland Cements

Anisquam Bridge is THIRD wet job dried by MORETRENCH for this Contractor

For the third time, Coleman Bros., Corp., Boston, Mass., call on Moretrench Wellpoint equipment for a quick, sure solution to a pumping problem.

The third job, pier foundation for Anisquam River Bridge, Gloucester, Mass., was dug down to rock — in the open and "in the dry"—22 feet below high tide.

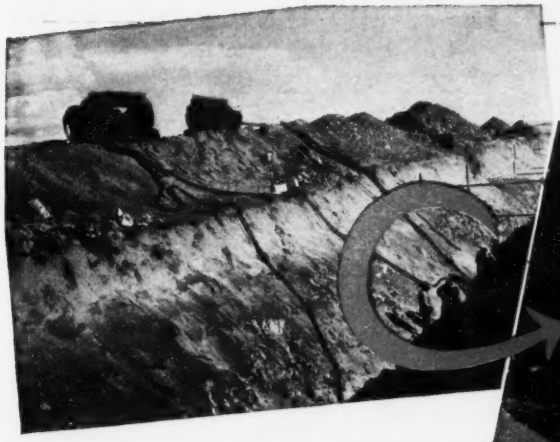
An earth dike protected the hole. Unhampered by water, work progressed quickly. Sloped banks eliminated sheeting.

What is *your* pumping problem? MORETRENCH can help you solve it — at a saving!

REPEAT ORDERS . . . the best testimonial in the world

MORETRENCH CORPORATION

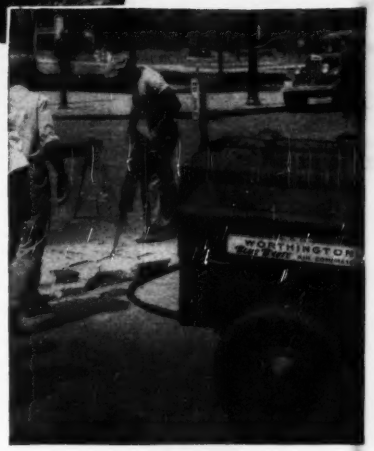
90 West St. New York 6, N. Y. | 3037 S. Christiana Ave. Chicago 23, Illinois | 7701 Interbay Blvd. Tampa 9, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway New Jersey



REPORT FROM OREGON:
"SPLENDID PERFORMANCE"

Blue Brute team-mates — three of a battery of WJ-45 Rock Drills, powered by Portable Air Compressors — used by the Del R. Beebe Construction Co. of Eugene, Oregon, excavating for a big housing project's sewerage system. The Beebe Co. reports "splendid performance" in every detail of Blue Brute operation.

Oregon and Ohio Agree: BLUE BRUTE AIR TOOLS ARE TOP COST-CUTTERS!



REPORT FROM OHIO: ***"VERY MUCH PLEASED"***

A Blue Brute construction team in Toledo, Ohio, removing street paving. Owner John V. Rush of Toledo says: "Our WB-85 Paving Breakers and 60′ Portable Compressors make ideal combinations. In four months' continuous operation, removing and replacing 6″ and 8″ concrete base, *we have had absolutely no maintenance trouble on this equipment.* We are very much pleased with it."

Put Blue Brute teams to work for you — and count on big savings from then on! Starting with Blue Brute Portable Compressors — 60′ to 500′ — you've got the most dependable and economical air suppliers ever made . . . tireless, trouble-free performers, with the easy-breathing Feather* Valves that get *all* the air out of every drop of fuel.

Then hook up their famous Blue Brute team-mates — Hand-Held Rock Drills, Clay and Trench Diggers, Tampers, Sheeting Drivers, Wagon Drills — and you're making air go farther and do more than it ever did before. That's because these Worthington air tools not only hit harder and last longer — they have the lightness, compactness and *precision balance* that means easier handling . . . faster, smoother progress . . . hours and dollars saved on every job.

Learn how Blue Brute teamwork can save *you* time and money. See your nearby Blue Brute Distributor for more reasons why *there's more worth in a Blue Brute*, or write us direct.

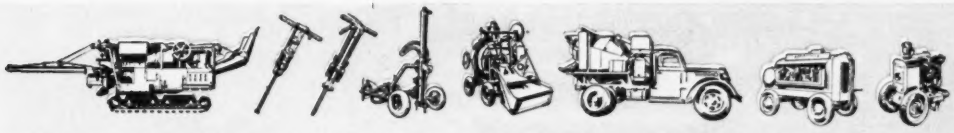
*Reg. U. S. Pat. Off.

HB-11

WORTHINGTON

WORTHINGTON PUMP AND MACHINERY CORPORATION
Construction Equipment Department, Harrison, New Jersey
Distributors in all principal cities

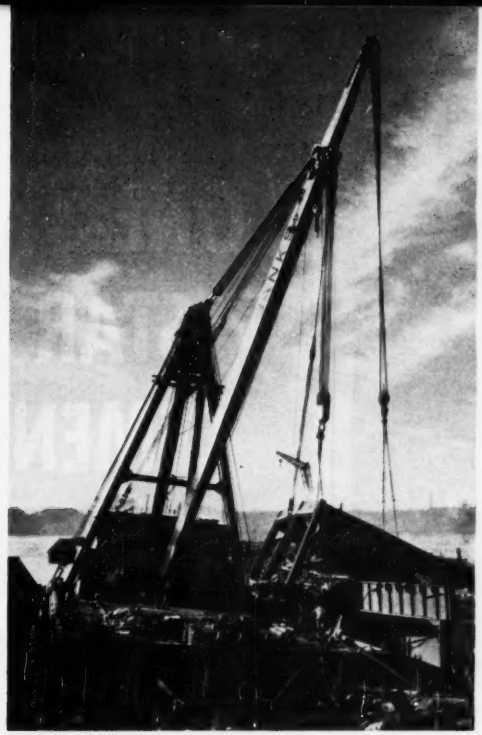
BUY BLUE BRUTES



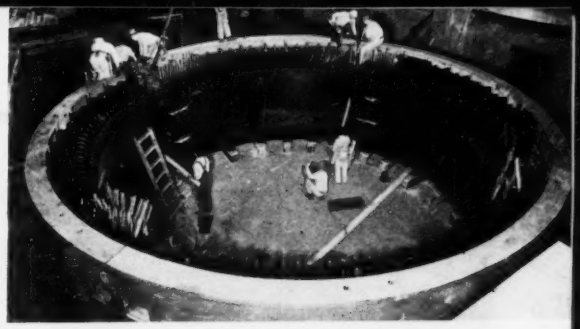
IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

DAMAGE TO HOLLAND TUNNEL, 9,250-ft. long twin-tube vehicular route under Hudson River between New York and Jersey City occurred May 13 when truck-load of drums of carbon disulphide, highly volatile chemical, exploded and started fires which burned other near-by vehicles with resultant injury to 500-ft.-long section of concrete hanging ceiling which forms floor of overhead ventilation duct through which air is exhausted from tube; fresh air inlet duct below roadway tunnel was uninjured. Explosion occurred at point 1,884 ft. from New Jersey portal of tube carrying eastbound traffic to New York. After debris and damaged motor vehicles had been removed by crews of Port of New York Authority, tunnel was restored to service May 16, after a 56-hr. shutdown, when examination had indicated no basic structural damage to tube which is lined with cast-iron rings. Holland Tunnel was opened to traffic Nov. 13, 1927.—Wide World Photo.

AT SITE OF BUGGS ISLAND DAM (below), $69,000,000 Army Engineer flood control and power project on Roanoke River in Virginia, cofferdam of cellular steel sheetpile units surrounds area in river bed where work on foundation of structure is in progress. Dam 22,000 ft. long and 144 ft. high will comprise 2,785-ft. concrete section and 19,572-ft. earth fill.—Wide World Photo.



IT'S MESSY WORK, but 100-ton floating derrick sails into cleaning up wreckage of burned-out Pier 57, New York City, occupied by Grace Line. Demolition contractors, R.&R. Wrecking Co., Long Island City, N. Y., are entitled to all material salvaged except Grace Line safes, still buried somewhere in wreckage.—Mal Gurian Photo.



LAST OF FIVE BIG GENERATORS is installed April 28 at Shasta Dam. New 75,000-kw. unit will bring California's largest hydroelectric plant up to ultimate capacity of 375,000 kw., according to Richard L. Boke, regional director of U. S. Bureau of Reclamation. Photo shows stator segments assembled and ready for installation.

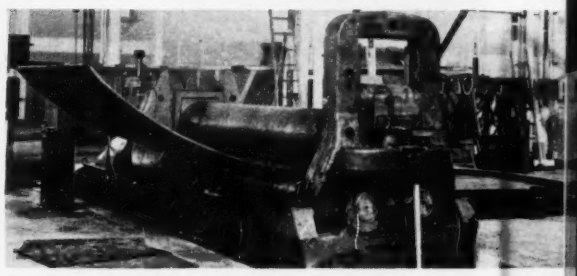
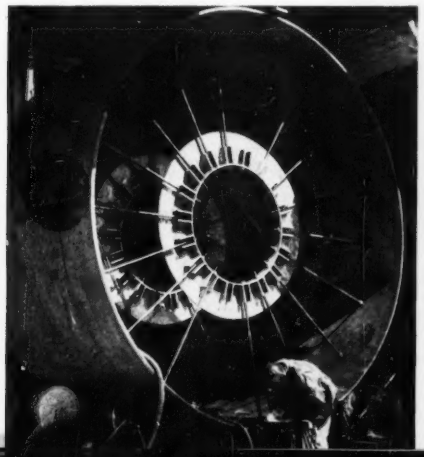


PLATE-BENDING ROLL of Baldwin Southwark machine forms perfect cone from 1-in. steel plate to serve as 8-ft.-dia. base of pressure vessel. Same type of roll is used by National Annealing Box Co. to produce cylindrical dipper-sticks for power shovels and fractionating columns for high-octane gasoline production. Powerful machine, capable of handling 14-ft. widths of plate, overcomes disadvantages of conventional method of press bending a few inches at a time.

Continued on next page

HUGE STEEL PENSTOCKS, measuring 13½ ft. in diameter and 426 ft. long, are fabricated at U. S. Bureau of Reclamation's Hungry Horse Dam on South Fork of Flathead River in northwestern Montana. Penstocks will deliver water to each of four 105,000-hp. turbines operating 71,500-kw. electric generators. "Spiders" comprising steel collars and bolted radial rods maintain circular shape of pipe during welding process. All seams are X-rayed to disclose flaws.

"CORKSCREW" GARAGE designed by Walter Wurdeman and Welton Becket, Los Angeles architects, provides off-street parking space two blocks south of General Petroleum Building in Los Angeles. Feature of structure is continuous spiral parking ramp winding around central core from basement to roof six stories high. Los Angeles city ordinance requires buildings in downtown area to provide parking space for one car for every 1,500 sq.ft. of building.



THIS MONTH'S NEWS REEL... Continued

LOW-COST APARTMENTS for 2,000 families in New York City's lower East Side will be provided by The N. Y. City Housing Authority's $25,000,000 Governor Smith Houses project here shown under construction in the shadow of Brooklyn Bridge. Buildings have structural steel frames.—Wide World Photo.

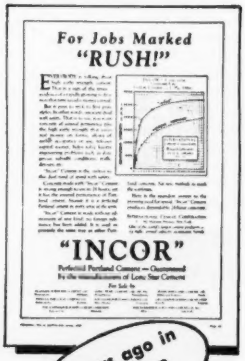
SHEETPILE CELLS FORM COFFERDAM for new lock and dam on Monongahela River at Morgantown, W. Va., being constructed by Dravo Corp., of Pittsburgh, for Corps of Engineers, U. S. Army. With water pumped out, first concrete is being placed for bases of land and river walls. Completion of structure will facilitate transportation of greater quantities of coal by barge into Pittsburgh industrial area.

LONE STAR CEMENT

advertises in

Construction Methods

and has for 21 years



21 years ago in Construction Methods

why?

. . . because CONSTRUCTION METHODS' readers—project engineers and contractors "on location"—*use* what Lone Star *makes*.

Lone Star Cement Corporation knows the power of the men who are responsible for actual construction work, when it comes to selecting the brands and buying the structural materials they use.

These field men are frequently tough for salesmen to see often enough or at the right times. They're always on the move. It takes selling time just to track them down—and selling time is one of the things most salesmen are short of.

That's why, since 1928, Lone Star has advertised in CONSTRUCTION METHODS . . . to help get its salesmen off to a running start in their everyday personal calls . . . and . . . to get preference by construction men every time they need cement.

Advertising in CONSTRUCTION METHODS reaches project engineers and contractors all over the country on all kinds of construction work . . . and reaches them when they're looking for information, else they wouldn't be reading it.

Construction Methods

Since 1919 the practical work book of the field men on construction jobs

McGraw-Hill Publishing Co., Inc., 330 West 42nd St., New York 18, N. Y.

Here are 19 other manufacturers of structural materials who advertise in CONSTRUCTION METHODS to reach the men "on location" who select the brands and makes of the products they use.

American Steel & Wire Co.
Armco Drainage & Metal Products, Inc.
Bethlehem Steel Co.
Caine Steel Co.
Carnegie-Illinois Steel Corp.
Cumberland Portland Cement Co.
Douglas Fir Plywood Association
L. B. Foster Co.
Hermitage Portland Cement Co.
Inland Steel Co.
Laclede Steel Co.
Lehigh Portland Cement Co.
Master Builders Co., The
Sisalkraft Co., The
Sonoco Products Co.
Standard Dry Wall Products
Terry Steel Contractors, Inc.
Union Metal Mfg. Co., The
Universal Atlas Cement Co.

THEY'RE ALWAYS ON GUARD WHEN THE BLOWING IS HARD!

EMBURY
Luck-E-Lite
HIGHWAY
TORCHES

Give You Highest Dependability at Lowest Cost

Order through distributors
EMBURY MFG. CO., WARSAW, N. Y.

GRIFFIN

GRIFFIN

WELLPOINT SYSTEMS

JETTING PUMPS

Distributors

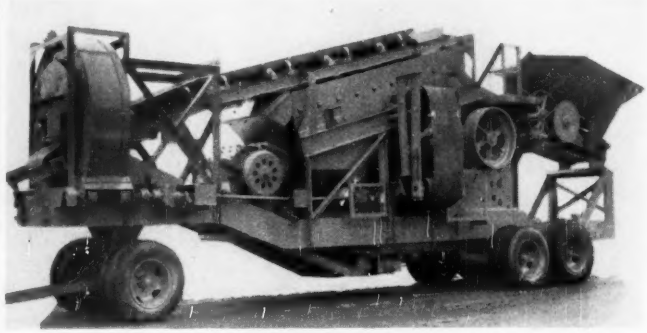
GRIFFIN ENGINEERING CORP.
2016 E. Adams St.,
JACKSONVILLE, FLA.

GRIFFIN EQUIPMENT CO., INC.
548 Indiana Street,
HAMMOND, INDIANA

GRIFFIN WELLPOINT CORP.
881 EAST 141st ST. • NEW YORK 54, N. Y.
Phones: MElrose 5-7704-5-6

CONSTRUCTION EQUIPMENT NEWS

JUNE 1949 REVIEW
of Construction Machinery and Materials



PORTABLE CRUSHER PLANT—Combination plant mounted on a single chassis has three primary components including jaw crusher, hammermill and gyrating screen. Plant is shovel-fed and can be moved out of quarry and back in working position, after blasting, in a matter of minutes, without dismantling. Power is transmitted to hammermill and crusher through special countershafts and universal joint connections. Hammermill will receive up to 5-in. stone and produce 1-in. road rock. Jaw crusher may be set to whatever size is needed for proper balance with hammermill. A large three-deck gyrating screen with gates at discharge end grades crushed stone into one, two or three sizes.—**Universal Engineering Corp., Cedar Rapids, Iowa.**

MOBILE CRANE—British mobile crane of 7½-ton capacity, being introduced in United States market, is powered by 47-hp. Ford V-8 gasoline engine and 11-kw. generator. Unit is mounted on four pneumatic-tired wheels and has full 360-deg. swing. Revolving superstructure carries operator's cab with driver's seat commanding unobstructed view of operation. Travels at 2 mph. loaded and 4 mph. empty. Four motions include hoisting, swinging, derricking and traveling, each controlled by separate motors. Brakes are electro-magnetic and cranes are equipped with automatic safe-load indicators. Accessory equipment includes clamshell buckets, electric magnets, demolition balls. Range of models includes 1½- to 15-ton capacities and 12-40 ft. booms. Selected United States dealers will be stocked with spare parts.—**Coles Cranes, Inc., 4303 S. Paulina St., Chicago 9, Ill.**

WATER TANK FOR PAVER—New water tank of 650-gal. capacity is available for Duomix (dual drum) 34-E MultiFoote concrete paving mixer. Tank is mounted on side of machine opposite operator's platform with other equipment making up the main water system. Provides plenty of capacity between tank-wagon trips to avoid necessity of shutting down paving operations. Equipment includes pump for handling water from wagon to tank.—**Foote Co., Nunda, N. Y.**

Kennametal Rock Bits

Save Time, Cut Costs

DO THE JOB FASTER

FEW BITS— FEW CHANGES

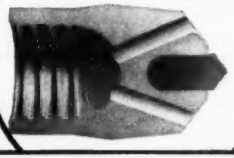
Kennametal Rock Bits have resistance to gage reduction 100 times greater than steel. Same size bit can be used on all drill rods. A full day's work frequently is done by the same bits on their respective drill rods.

DRILL FAR LONGER THAN STEEL BITS

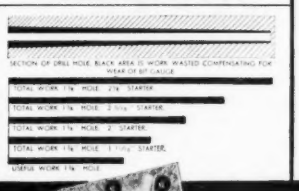
In Cambria County, Pa., 1 Kennametal rock bit outlasted 188 steel bits, and saved about $40.00 in bit cost alone. Drilling time for the footage was reduced from 1210 minutes to 308 minutes.

The 2 Kennametal Rock Bits shown at right drilled as long on this job as 600 steel bits. Each bit drilled 1,500 feet, total of 3,000 feet, in black flint, shale, and sandstone!

THIS IS THE DESIGN— COMPLETELY PROVED



Proof of Superiority of Single Gage Drilling with KENNAMETAL ROCK BITS



Kennametal Rock Bits have a cutting edge of solid Kennametal that keeps gage loss to within thousandths of an inch. Its resistance to wear enables the bit to drill up to 4 times as fast, and drill smooth, uniform diameter holes in sandstone, granites, ganister, quartzite, limestones and other medium and hard materials.

Users of Kennametal Rock Bits report lower bit cost, better blasting effectiveness, far fewer bits used per foot drilled. Kennametal Bits can be used on sinkers, drifters, stopers, and wagon drills, without any conversion of equipment. They screw on standard drill rods.

For complete particulars on how Kennametal Rock Bits can reduce your drilling costs, ask for Bulletin RB-1. Write to Mining Division, Kennametal, Inc., Latrobe, Pa.

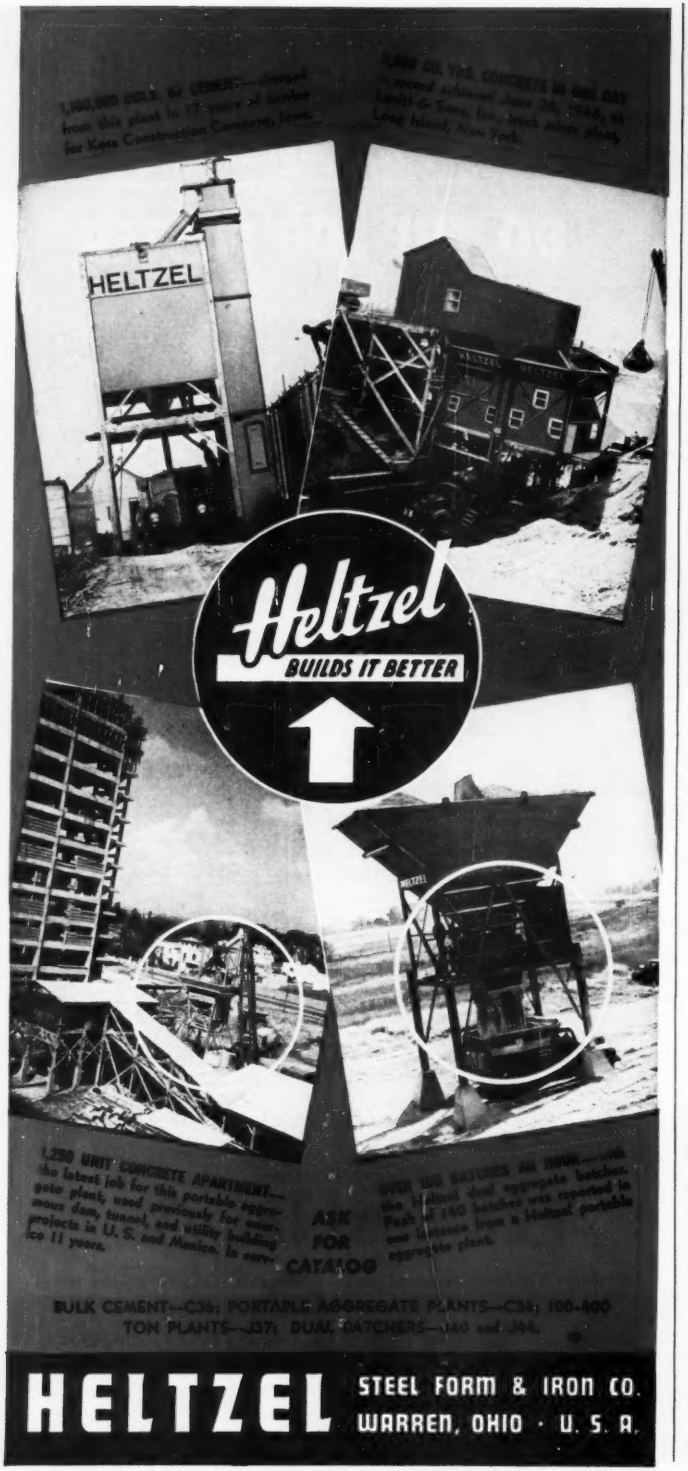
MINING DIVISION

KENNAMETAL® Inc.

Latrobe, Pa., U. S. A.

THE WORLD'S LARGEST MANUFACTURER OF CEMENTED CARBIDE MINING TOOLS

Available in the following sizes:
1⅜ , 1½ , 1⅝ , 1¾ , 2 , 2¼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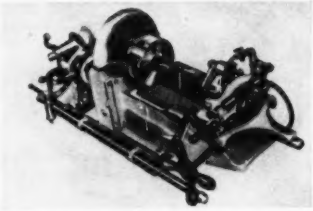
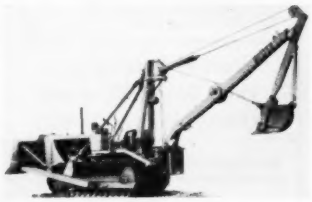
Heltzel
BUILDS IT BETTER
ASK FOR CATALOG
BULK CEMENT—C36; PORTABLE AGGREGATE PLANTS—C34; 100-400 TON PLANTS—J37; DUAL BATCHERS—J40 and J44.
HELTZEL STEEL FORM & IRON CO.
WARREN, OHIO · U. S. A.

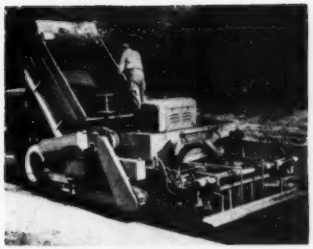
COMPRESSED AIR SHUTOFF VALVE—Safety valve installed between compressed air line and hose-connection reduces air flow should a break occur in hose line. When break is repaired, valve automatically opens and permits pressure to resume. Manufactured of brass for ½- and ¾-in. pipe sizes. Does not restrict flow or reduce volume of air being used and will operate under varying pressures.—**Olin-Engine Co., 9 Lafayette Ave., Buffalo 13, N. Y.**



PIPE AND BOLT MACHINE—Cuts and threads pipe ⅛- to 2-in. dia.; cuts off bolts ¼- to ¾-in. dia. and threads bolts ¼- to 2-in. dia. Automatic switch lock makes it impossible to start machine unless chuck wrench is in its holder. Eccentric spool pipe rest absorbs "whip" of long lengths of rotating pipe. Wide range of kinds and sizes of dies available from stock.—**Beaver Pipe Tools, Inc., Warren, Ohio.**



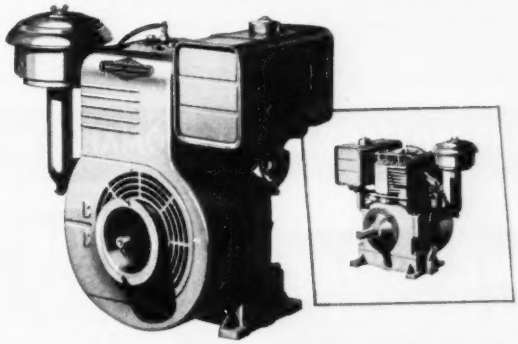
HOE ATTACHMENT—A ½-cu.yd. hoe front is new Hyster Hystaway attachment for use with Caterpillar track-type tractors. Dipper has cutting width of 33 in. and optional dipper width of 23 in. for narrow ditching. Because center of swing is beyond crawlers, the hoe can reach farther into excavation than other machines of comparable size. Quick change-over from one front-end attachment to another is easily accomplished. Use of bulldozer is possible even with attachment installed.—**Hyster Co., Portland 8, Ore.**



BITUMINOUS PAVING MACHINE—Lays any width of paving between 5 ft. 8 in. and 12 ft. 6 in. without removal or insertion of any parts. Hydraulic device automatically matches level of course being laid with adjacent course, curb, gutter or other grade line, maintaining correct thickness for final compaction by roller. Lays any mat thickness up to 6 in. A 6-ton hopper insures ample material for continuous operation. Center and rear screeds oscillate at 900 strokes per min. Powered by 6-cylinder 37.5-hp. radiator-cooled gasoline engine. Dual-conveyors carry material from hopper to screeds. An agitator-distributor spreads material evenly across center screed width. Screeds are heated by hot air and have hydraulic lifting devices.—**Jaeger Machine Co., Columbus 16, Ohio.**

CRANE CARRIER—Independently powered 35 mph. truck-type chassis provides mounting for 20-ton crane and ¾-cu.yd. excavator. Convertible to all front-end attachments. Folding, hinged crane boom minimizes over-all length to permit ease of operation on highways. Expandable or telescopic outriggers of I-beam type are located in crane-carrier chassis to provide required stability when machine makes extremely heavy lifts. Wheelbase is 170 in. and maximum over-all width 96 in. Powered by 125-hp. Waukesha 6-cylinder gasoline engine.—**Byers Machine Co., Ravenna, Ohio.**

The Engine Is as Important as the Machine It Powers



It's not enough for a machine or appliance to be skillfully designed, carefully made, and expertly assembled. It has to be *powered* right, too — with the kind of power that will insure the best performance possible year after year.

That's why it will pay you to insist on Briggs & Stratton engines — recognized the world over for dependable 4-cycle, single-cylinder, air-cooled power.

No other engines in the field can assure you such efficient, dependable, low-cost performance. No other engines have satisfied so many customers. No other engines are so universally preferred by manufacturers, dealers, and users alike.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U. S. A.

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BRIGGS & STRATTON
GASOLINE ENGINES
Powered Power
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Of Course it's an

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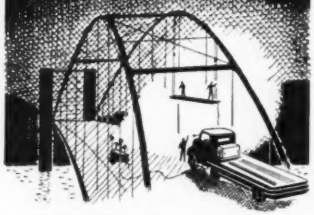
A Bonus Yard...
In Every Cast

In OMAHA Dragline Buckets all dead weight has been eliminated—a Bigger payload built in! This means profits on the job and on the job record. Omaha Buckets fill easily—within 1½ to 3 bucket lengths. No recasting—no time wasted changing positions. You'll get Bigger Payloads and Greater Profits with Omaha Buckets.

Write for Complete Catalog

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

Have Power Where You Need It!



Fairbanks-Morse generating sets enable you to have power, light and heat where you need it. These popular units are widely used on construction jobs, farm field operations, in logging camps; for roadside restaurants, stores, and used car lots; to illuminate baseball and football fields; for resorts and private homes. Fairbanks-Morse generating sets are available in capacities from 350 to 35,000 watts. For complete details, see your nearest Fairbanks-Morse dealer or mail the coupon today.

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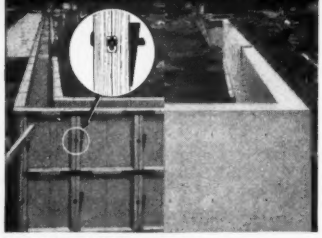
Chicago 5, Illinois

Gentlemen: Please send full information about Fairbanks-Morse generating sets.

Name.....
Address.....RD.....
City.....State.....

SYMONS FORMING SYSTEM



SAVES TIME
Inset shows how Symons System saves time in erecting and stripping forms. Bolt passes through 2 x 4 studs and tie loop. Wedge secures the assembly. This simple device cuts forming time 50%.

SAVES LABOR
Harry G. Dehring, Foreman, Taylor Brothers, South Bend, Ind., states "Seven men set up the forms for a 26' x 27' foundation in one hour and fifteen minutes."

SAVES COST
With Time and Labor cut in two . . . Plus savings in nails, spreaders, walers and bracing . . . Plus far greater reuse of forms . . . Costs drop to a new low.

RENTED WITH PURCHASE OPTION
WRITE TODAY FOR FREE CATALOG

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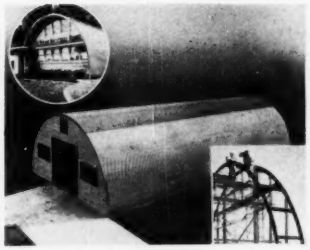


QUONSET BUILDING IMPROVEMENTS—Improvements in Quonset building design provide faster erection, greater strength and smarter appearance. New Quonset contains fewer but sturdier parts in the framework. Most popular size of 40x100 ft. can be erected in 25 percent less time than required for the 1948 design. Frame construction is simplified by new type of supporting member, termed bridging, between ribs; it consists of quickly installed channel sections connecting adjoining ribs horizontally, like a ladder's rungs. Greater structural efficiency for Quonset 40 results from change in manner of applying corrugated steel sheets to framework of Stran-Steel members; these have a groove into which nails can be driven. Side sheets with corrugations horizontal, rather than vertical, are nailed to purlins extending 2 in. above ribs.—**Great Lakes Steel Corp. (Stran Steel Division), Penobscot Building, Detroit 26, Mich.**

CONCRETE GROOVING MACHINE—Gasoline engine powered unit cleans sealing material from concrete joints in airport runways or highways. Removes old seal and simultaneously cuts clean, correctly profiled groove to allow bond with new sealing material. Cutting is done by series of 4-in. forged tool steel cutters mounted on heavy steel head revolving at 2,400 rpm. By changing cutter heads, joints or fissures from ⅜ to 2¼ in. wide can be cleaned and regrooved to desired dimensions. Depth of cut is about 1¼ in. Weight of machine is under 700 lb.—**G. H. Tennant Co., 2530 N. Second St., Minneapolis, Minn.**

Putting New Link in New York's Route 28

Layer after layer of rock gives way to the steady pounding of tough drill steel.

As ribbon of concrete took shape through heavily wooded area. Through traffic was detoured at this point. Note sign at left.

Rigged with wire rope, power shovel digs into loose rock as truck stands by.

A. B. Conway (left), resident engineer, N. Y. State Highway Dept., chats with John Amodei, contractor's superintendent.

New York's Route 28, popular scenic highway through the Catskill Mountains, recently underwent relocation in the Ashokan Reservoir area, between Beechford and Hurley. Now in use, the new two-lane road is more than 11 miles in length. It was built by N. R. Corbisello, Binghamton, N. Y. Bar mats and reinforcing bars were supplied by Bethlehem.

Batch bucket drops top course over Bethlehem Bar Mat. Mat at side of strip is ready for placing. The project used a total of 525 tons of mats.

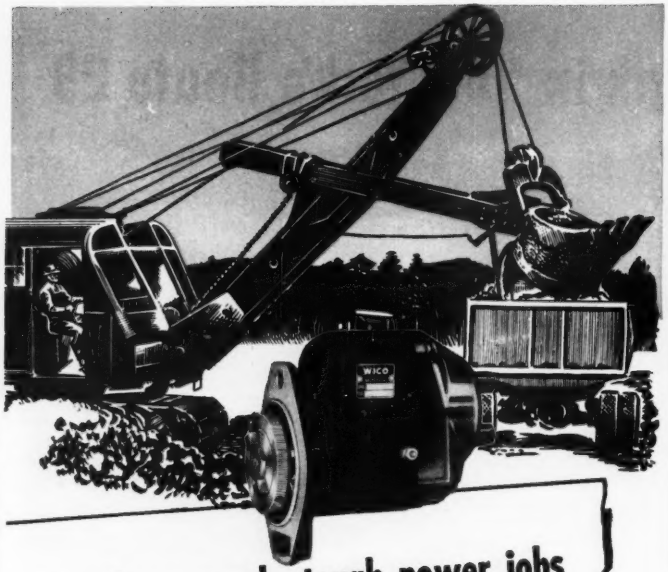
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
Hollow Drill Steel • Spikes • Bolts and Nuts
Timber Bridge Hardware • Tie-Rods
Sheet and H-Piling • Fabricated Structural Steel

BETHLEHEM STEEL



For those rough, tough power jobs

HERE'S A NEW, COMPACT WICO *heavy duty magneto*

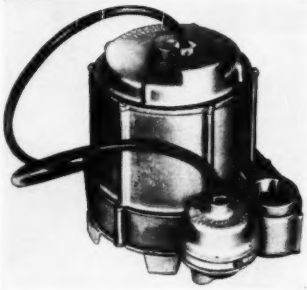
No matter how many hours of continuous service you need . . . no matter how much dust or dampness . . . your engine will get the regular, hot spark it needs from this WICO Model XHD magneto. It's a *new* magneto, designed to do the hard work you need done. It's compact. The molded, insulated coil is stronger so there's less chance of breakdown. This solid plastic case is far tougher than a tape winding. A specially made bronze bushing and ball bearing, lubricated for life, insure trouble-free service. The large — 3/16" — tungsten contacts resist fouling and wear longer. Built-in impulse coupling. On flange-mounted models, a Buna-N oil seal prevents leakage. Available for 4 or 6 cylinder engines, flange or base mounted.

This *new* WICO Model XHD is the finest magneto available for engines operating in continuous service under the most adverse conditions that require ignition units of exceptional stamina and ruggedness.

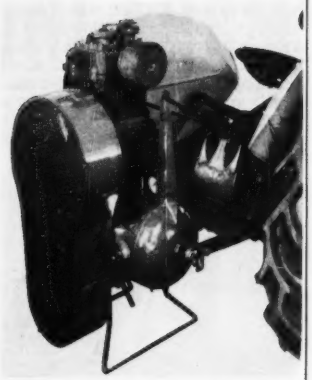
If you've had ignition trouble, chances are this economical WICO XHD will change that. Ask your equipment dealer, or one of WICO's more than 2,000 authorized service stations. Wico Electric Company, West Springfield, Massachusetts.

SINCE 1897 WICO DEPENDABLE IGNITION

ASPHALT JOINT REMOVER—Machine powered by 4-hp. gasoline engine rides on pneumatic-tired wheels and is equipped with rotary carbide-tipped cutter to remove asphalt joint material on highway and airport runways. Exchangeable cutter accommodates various widths of joint. Waste material is collected by a pick-up device. Depth of cut is controlled by wheel on handle of machine.—**San Jose Pipe & Tank Co., West San Carlos St., San Jose, Calif.**

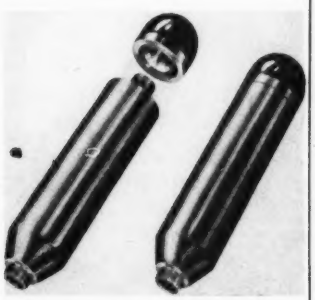


SUMP PUMP—Compact size (9½ in. high and 11 in. dia.) and low weight (45 lb.) and total submergibility are features of Kenco sump pump. Pressure of rising water actuates diaphragm switch which is located in the discharge line and has no moving parts exposed to water. Turn-on point, or height of water which is required to start pump, is easily adjustable from a few inches to several feet without special tools. Switch does not require a float. Switch automatically shuts off when pump draws air. All exposed surfaces are of bronze. No permanent mounting is required. Ball-bearing motor is hermetically sealed and bearings are constantly lubricated by running submerged in oil. Discharge connection is vertical. Powered by a 1/3-hp. 115-v. ac. motor, pump is rated at 3,300 gph. at 10 ft., and will pump water to a height of approximately 25 ft.—**Kenco, Inc., Elyria, Ohio.**

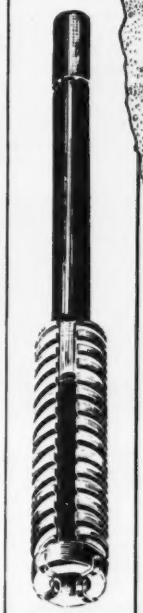


TRACTOR-ATTACHED AIR COMPRESSORS—Two new air compressor units are designed for direct attachment through universal joint couplings to tractor power take-offs They have displacements of 17 and 30 c.f.m. respectively. They are intended to provide a convenient source of on-the-job compressed air wherever it may be required by contractors and other users.—**Miller-Robinson Co., 7007 Avalon Blvd., Los Angeles 3, Calif.**

DUCT-MOLDING TUBING — Rubber tubing called "Ductube" is available in lengths from 10 to 40 ft. and in diameters from 1 to 3 in. to form when inflated, duct openings in freshly poured concrete. Use involves these steps: After inflation, tubing is placed either vertical or horizontal in straight or curved lines; concrete is poured over inflated tubing, and after concrete has set tubing is deflated and pulled from molded duct. **Ductube Co., 940 Shoreham Building, Washington, D. C.**



RUBBER-TIPPED VIBRATOR—To reduce possible damage to concrete forms, rubber-tipped vibrators have been developed. With them plaster-of-paris inserts for architectural concrete, plywood or any moisture-absorbent form lining materials, such as Celotex, can now be vibrated with a minimum amount of damage.—**Viber Co., 726 S. Flower St., Burbank, Calif.**



THROUGH CONCRETE IN JIG TIME !

DRILL BILLY says:

"HOLES DRILLED CLEANER . . . AND FOR LESS!

WITH THE ORIGINAL

ROTARY CONCRETE DRILL BITS"

Wherever there's drilling to be done through concrete, brick or marble, a ROTARY Drill Bit will do it faster and better. Users in many fields of industry praise the lower cost per hole, and the way we stand back of every drill.

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For use in electric or air rotary drills. Every ROTARY Bit has an exclusive, *quiet, pulverizing action* that leaves a sharp-precisioned hole. No hammering—no chiseling—no jar. FREE FACTORY RE-SHARPENING *until further notice.* Standard sizes ¼" to 2" diameter. Larger sizes on request. Get the money-saving facts. Write today for free, illustrated folder.

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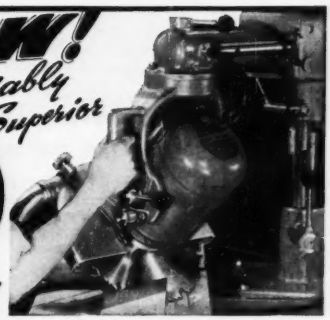


Radial Saws WITH NEW LINE 5-LIP MOULDING CUTTER

The CMC Radial Saw has long been famous among builders because it does everything faster, easier, better! Compound mitering above is just one example. NOW, with the new CMC line of 5-lip moulding cutters the CMC Radial Saw is definitely tops! Here are some of the advantages of these new CMC moulding cutters.

- SAFER—no blades to come loose!
- FASTER—five cuts per RPM!
- SIMPLIFIES SHAPING OPERATIONS.
- ONE-PIECE DESIGN ELIMINATES COMPLICATED ADJUSTMENTS.

To sharpen, grind only face of cutter as indicated above.

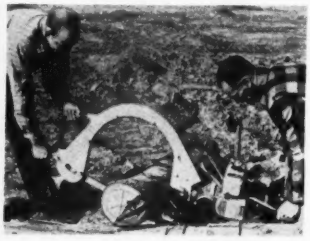
Write today for full details of this new money-making development in shaping!

CONSTRUCTION MACHINERY CO'S.
WATERLOO, IOWA, U.S.A.

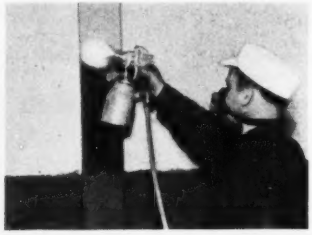
Mixers — Pumps — Hoists — Dumpover Carts

SHOVEL-CRANE ATTACHMENT—Truck-mounted unit combines six machines in one with interchangeable booms and buckets, convertible from shovel to trench hoe, dragline or crane. Mounts on any 1½-ton truck chassis, or larger. Bucket capacity is 1/3 cu.yd. and boom for trench hoe and shovel attachment is 14 ft. long with 6-ft. stick on trench hoe and 10-ft. stick on shovel. Boom length of dragline and clamshell attachment is 25 ft. New cab design improves operator visibility. Crane capacity is 5 ton.—**Schield Bantam Co., Inc., Waverly, Iowa.**

BLUEPRINT CABINET — Built of heavy-gage furniture steel, new blueprint cabinet contains five smooth gliding drawers on ball-bearing rollers. Five-drawer units can be securely stacked to meet individual requirements. Lift compressor in the front of the drawer and a hood in the rear prevent the material filed from curling, creasing or tearing. Two sizes available: one with inside drawer dimensions 37x25 in. and 2¼ in. high; and larger one with inside drawer dimensions 43x32 in. and 2¼ in. high. Finished in olive green and gray.—**Cole Steel Equipment Co., 285 Madison Ave., New York 17, N. Y.**



BOW SAW—New 20-in. bow saw, designed to cut timber in any position without pinching, prying or wedging, is powered by 5-hp. engine and weighs 63 lb. Features include: full 360-deg. swiveling, automatic clutch, automatic control of chain tension, kick-proof starter, special fast-starting magneto, operation of engine in any position and rip-cross chain which is easily sharpened by hand filing without removing chain from saw. Bow is a rigid, strong aluminum-alloy casting, while chain track and blade are formed of tool steel.—**McCulloch Motors Corp., 6101 W. Century Boulevard, Los Angeles 45, Calif.**



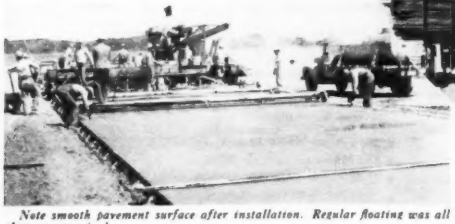
ANTI-RUST PAINT — Aluminum anti-rust paint known as "Rustrem" penetrates and seals surface, preventing further rust action. Can be applied over rust without wire brushing or scraping. Suitable for both interior and exterior use. Furnished in proper consistency for either brush or spray application. Guaranteed to "leaf" on all surfaces and will not turn brown under most adverse weather conditions.—**Speco, Inc., Cleveland, Ohio.**

Mechanical Dowel AND TIE-BAR INSTALLER

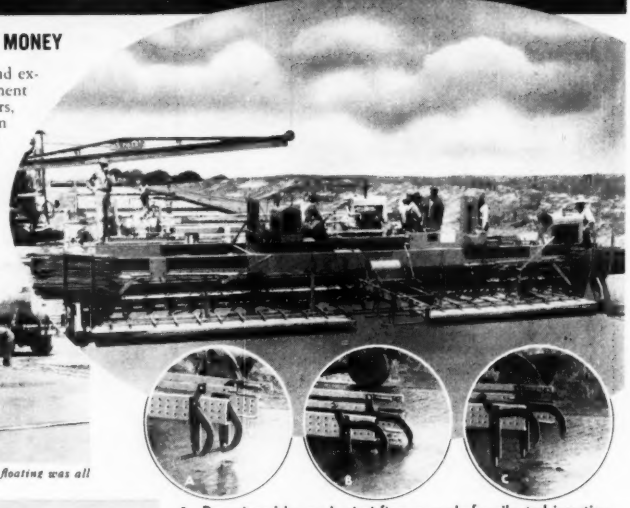
AIRPORT CONTRACTORS—SAVE TIME AND MONEY

You eliminate stakes, complicated holding harness and expensive hand labor, and are assured of perfect alignment with this Flex-Plane installer. Job tested for three years, this machine has demonstrated substantial savings in time and money. Let us tell you how—write today to Flex-Plane, Warren, Ohio, for Bulletin J-105.

- ADJUSTABLE TO VARIOUS DOWEL SPACINGS
- ADJUSTABLE TO VARIOUS PAVEMENT WIDTHS
- INSTALLS IN EXACT POSITION AND ALIGNMENT
- CUTS JOINTS



Note smooth pavement surface after installation. Regular floating was all that was required.



A. Bar gripped by mechanical fingers ready for vibrated insertion into plastic concrete. Tie-bars and dowels easily insert into fingers.

B. Bar has been worked, by vibration, to pre-determined depth. Rear holding finger was disengaged as bar started through concrete.

C. Completed operation. Vibrated removal of fingers assures complete seal of plastic concrete. Surface disturbance is minor.

FLEX-PLANE
WARREN OHIO
(FLEXIBLE ROAD JOINT MACHINE COMPANY)

UNI-FORMS' *Simplicity* Cuts Costs

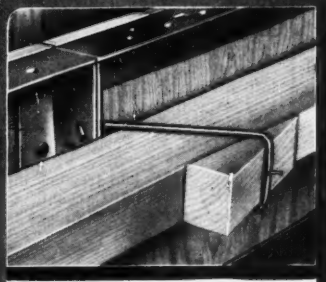
...On Any Forming Job

SAVE TIME

SAVE LABOR

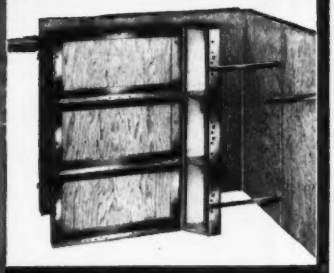
SAVE MATERIAL

Positive Wall Thicknesses



ALIGNMENT

Required on 1 side only—easily placed—hooked to steel frame with LINER CLAMP.



INSIDE CORNERS

RIGID . . . All steel . . . prefabricated forms — provide simple, easy, accurate inside corner forming.

OUTSIDE CORNERS

A corner angle with PANEL LOC clamps insures a tight, automatically accurate, vertical corner. No additional tying necessary.

UNI-FORMING

The simple assembly of UNI-FORMS with Uni-Form Ties and Tie Keys guarantees a rigid concrete form, insuring automatically accurate walls from top to bottom.

UNI-FORMS . . . a system of forming . . . ready to use when they reach the job. *Anyone* can assemble them *anywhere* . . . no special training or experience necessary . . . they are "simplicity personified."

UNI-FORMS *always* insure the lowest all-around costs . . . the best job . . . in the least time. Do *more* jobs in less time with UNI-FORMS.

Write for the new 32 page UNI-FORM Catalog.

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Form Clamp Company
1238 NORTH KOSTNER AVE.
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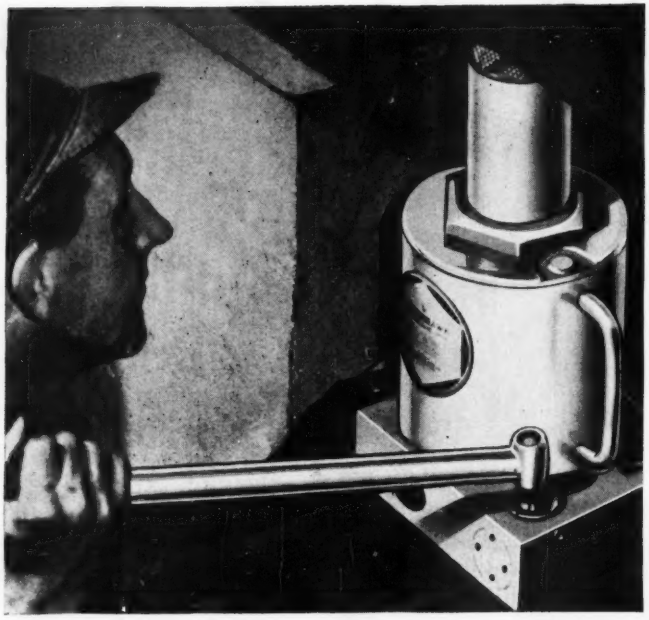
Form Ties • Form Systems • Form Clamps • Spiroloes • Twistyes • Concrete Specialties

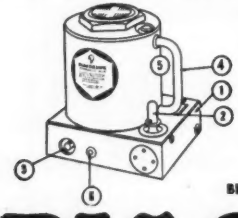


One Man + Short Handle + GB-11 = 50 TONS of POWER!

Take *another* look at the picture. See the *short* handle . . . the *cramped* quarters. And, yet, *one man* and that Model GB-11 Blackhawk Hydraulic Jack *can lift 50 tons!* What contrast this is with a *mechanical* jack setup . . . which ordinarily needs *extra* manpower on a *long* handle, plus *more* time and *more* operating space to do similar work.

The "big edge" goes to the Blackhawk Jack because it, being *hydraulic,* has about *double* the efficiency of the average mechanical jack. Lifting and lowering are controlled to a thousandth of an inch . . . no sudden accidental lowering and no manual "working down." Save accidents, time and money by insisting on *Blackhawk* hydraulics wherever possible. Remember—*Blackhawk* Hydraulic Jacks bring benefits found in no other hydraulic jack.

Always Specify "BLACKHAWK" and Get Extra Advantages



1. **Super Strong Base** machined from a single piece of steel; 2. **Fast Contact**—speed pump quickly raises plunger to load then load pump automatically cuts in to lift load easily; 3. **No accidental lowering** — release valve is recessed; 4. **Protection** for pump beam. Handle and base block damage; 5. **On-the-Side Operation** — full power; 6. **Can be Gauge-Equipped** to measure power exerted.

A complete line . . . 1½ up to 100-ton capacities. Buy from the Blackhawk Distributor.

BLACKHAWK MFG. CO., Dept. J2369, Milwaukee 1, Wis.

BLACKHAWK®

HYDRAULIC JACKS • PORTO-POWER • PIPE BENDERS • WRENCHES

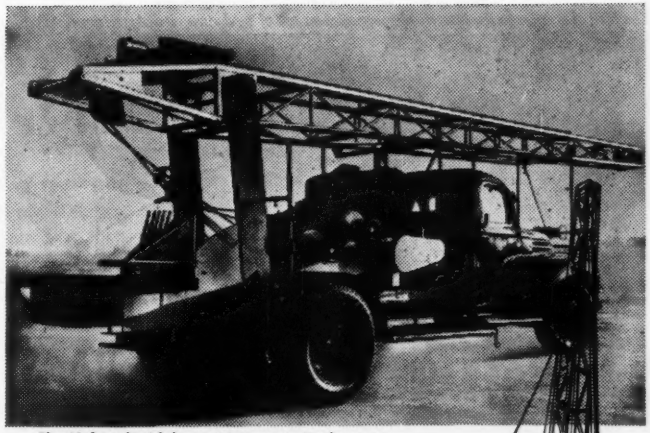
WELDING TORCH — New model AV-10 is lightweight welding and brazing torch with rear end designed for easy hose connections. Converts into a cutting torch by use of cutting attachment. Weight is 15 oz. for long, 15-in. tip and 10 oz. for short, 10-in. tip. Positive flame control is made possible by specially designed valves and freeflow mixing chamber. — **Liquid Carbonic Corp., 3100 So. Kedzie Ave., Chicago 23, Ill.**

CONCRETE VIBRATOR — Mighty Midget universal electric concrete vibrator measures 46 in. over-all and weighs 27 lb. Powered by universal electric motor controlled by built-in switch in loop handle. Vibrator head delivers 7,000 frequencies per min. Light weight permits operation by one man. Recommended for use in hard-to-reach spots in concrete form or as edge vibrator or for expansion joints on pavement work.—**Mall Tool Co., 7740 S. Chicago Ave., Chicago 19, Ill.**

HEAVY CONSTRUCTION TIRE—New type tire known as the "Hard Rock Rib" is designed for front-wheel service in heavy construction, excavation and strip mining and is expected to help eliminate hard steering. Tire is manufactured in three sizes, including 12.00-24, 13.00-24 and 14.00-24. Tread design consists of three heavy circumferential ribs with shoulder pattern resembling that of the Goodyear standard hard rock lug tire.—**Goodyear Tire & Rubber Co., Akron, Ohio.**

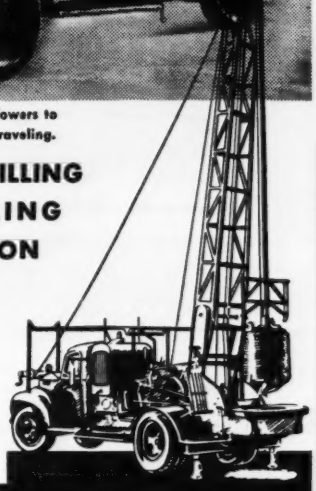
ENGINE - STARTING FLUID — Chevron starting fluid and ethyl-ether compound packed in gelatin capsules is injected into intake manifold or diesel or gasoline engine to overcome cold weather starting difficulties. Capsules are used with a special puncturing tool and priming system.—**California Oil Co., 30 Rockefeller Plaza, New York 20, N. Y.**

TRACTOR-SCRAPER—New 200-hp. diesel-powered Heiliner with 16-cu.yd. scraper combines low center of gravity with high ground clearance; rear bumper extends well back of tires for low-in-line pusher action. Unobstructed top of scraper makes maximum heaped loading possible and provides clear driver vision for digging, spreading and synchronized push-loading. When scraper is used as substitute for bottom-dump wagon, open top permits easy loading with shovel or dragline.—**Heil Co., Milwaukee 1, Wis.**



The 32 foot derrick has a 20-ton capacity; lowers to a horizontal position over truck cab when traveling.

SEWAGE DISPOSAL DRILLING
WATER WELL DRILLING
MINERAL EXPLORATION
SOIL TESTING
CALYX DRILLING
BELLED FOOTINGS
AND PIER HOLES
OILFIELD WORK



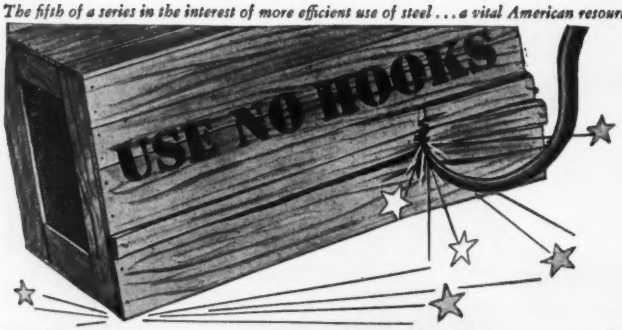
CALIFORNIA
EARTH BORING MACHINE
Drills Holes 10 in. to 72 in. in Diameter, 200 Feet Deep!

Any earth boring operation is performed by the California Earth Boring Machine at substantial savings, because the equipment is especially designed and engineered to get the job done. Built as a unit on skids which can be mounted easily on any truck chassis 1½ tons or larger.

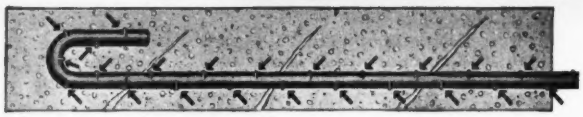
SEND FOR LITERATURE—A new 12 page brochure tells the success stories of contractors who use California Earth Boring Machines, and cites the case histories of jobs and the costs per foot-of-hole drilled. Ask for your copy on your business letterhead.

California Welding & Blacksmith Shop, Inc.
7222 East Slauson Avenue, Los Angeles 22, Calif.

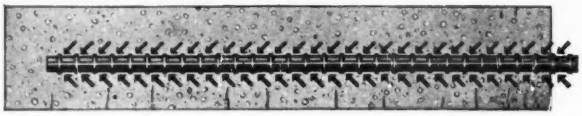
The fifth of a series in the interest of more efficient use of steel . . . a vital American resource.



ON BOXES or REINFORCING BARS!



Old style reinforcing, with localized anchorage — conducive to widely spaced open cracks.



Laclede Multi-Rib Bars adequately transmit stresses to concrete by uniformly distributed anchorage. Small, closely spaced cracks do not open under load.

The hook, which has been the symbol of bond strength in 30 year old codes has been succeeded by the balanced design of reinforcing bar deformations specified in ASTM Specification A 305-47 T. The balanced design and distributed strength of Laclede Multi-Rib Reinforcing Bars meet these new requirements—assure a more efficient use of steel and a *better* job!

Modernize your specifications — with ASTM A 305-47 T and Laclede Multi-Rib Bars!

LACLEDE
Producers of Construction Steel

LACLEDE STEEL COMPANY
St. Louis, Mo.

Stang **WELLPOINT SYSTEM**

For KNOW-HOW • ENGINEERING • SUPERVISION • EQUIPMENT to keep jobs DRY

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

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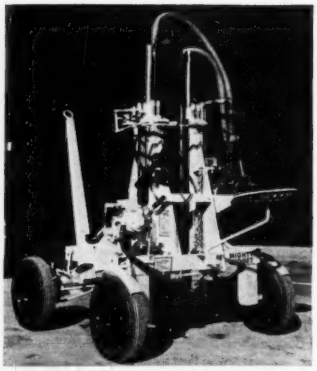
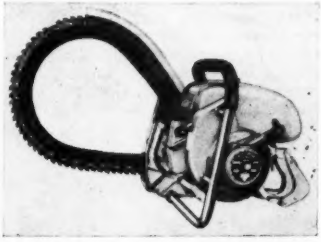


RAPID PAVEMENT BREAKER—Makers of the Mighty Midget Pavement Breaker announce new features which permit greater ease of handling and gains in yardage of concrete broken in a day's operation. All controls are within easy reach of the seat directly behind the machine, allowing the operator to see exactly where and how the hammer contacts the pavement. A steering wheel has been added which fits alongside the machine and is readily reached. Worm drive tends to hold the front wheel much steadier under difficult conditions encountered on various projects. New higher wheels allow the machine to run through broken concrete and remain on a straight course, without sinking into the concrete.—**The Rapid Pavement Breaker Corp., 2751 East 11th St., Los Angeles, Calif.**



ONE-MAN BOW SAW—New addition to line of chain saws is powered by 3½-hp. 2-cycle Mercury air-cooled gasoline engine. Straddle type chain travels on an open circular guide rail. Extra long casting of high-strength aluminum alloy keeps branches and underbrush from catching in top of chain and gives guide positive rigidity and provides additional safety feature. Capacity of saw is 15 in. All controls are conveniently located on pistol-grip handle. Clutch is disengaged by a squeeze on the handle and quickly re-engaged by releasing a simple safety catch.—**Henry Disston & Sons, Inc., Philadelphia, Pa.**

How Arc Welding Simplifies Beam-To-Column Connections

MODERN welded buildings are being erected in less time and at lower cost with arc welding. Structural members are designed to permit fast shop fabrication wherever possible. For erection, columns, girders and beams are aligned, bolted, guyed and then arc welded with Lincoln "Fleetweld 5" electrodes using Lincoln Engine Driven "Shield-Arc" DC welders. The following examples of beam-to-column framing are typical of structural connections being used on multiple story buildings in various parts of the country and are discussed in detail in a new series of Structural Studies, available from The Lincoln Electric Company.

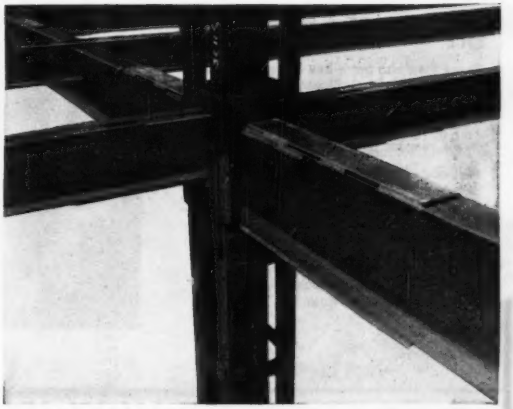


Fig. 1. Main girders, supported on cross channel plates, run directly through main columns. Four column angle sections shown are for temporary support during erection and later serve for composite steel and concrete columns. This construction is used on a Los Angeles Bell Telephone Building extension.

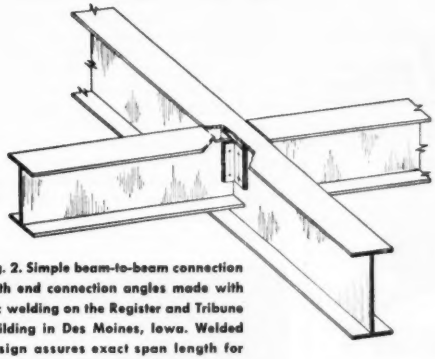


Fig. 2. Simple beam-to-beam connection with end connection angles made with arc welding on the Register and Tribune Building in Des Moines, Iowa. Welded design assures exact span length for beams and exact spacing of main girders.

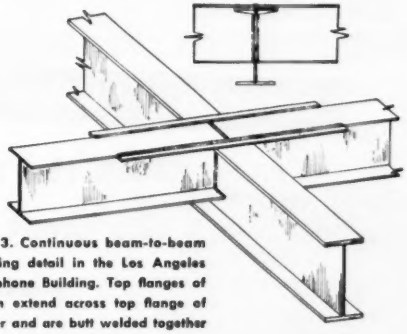


Fig. 3. Continuous beam-to-beam framing detail in the Los Angeles Telephone Building. Top flanges of beam extend across top flange of girder and are butt welded together on center line of girder.

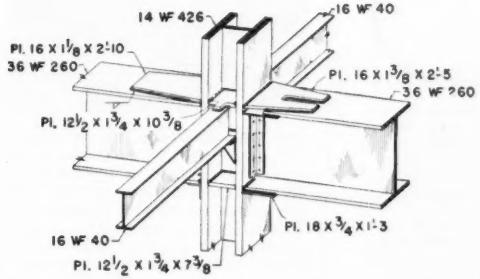


Fig. 4. Framing details at third floor level of ten story addition to Register and Tribune Building. All holes are eliminated from main columns by fillet welding or plug welding erection brackets to web and erection angles to column flanges.

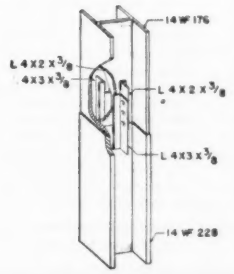


Fig. 5. Column splice at third floor level uses splice angles shop-welded to column webs. During erection, angles serve to hold columns in alignment while field-welding. Column ends are milled square in the shop and edges bevelled for simpler field-welding.

The above is published by **THE LINCOLN ELECTRIC COMPANY** *in the interests of progress.*

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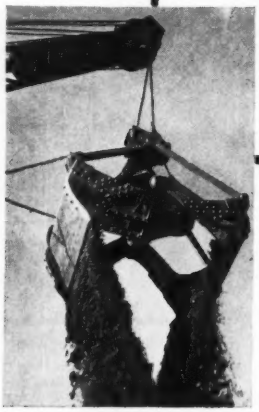

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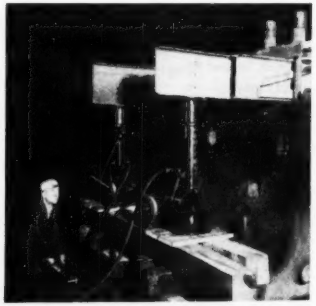
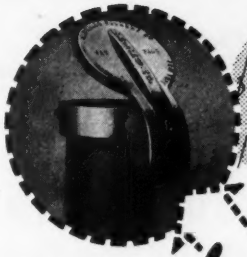


AIR MOTOR JACK—Powerful jack with capacities of 20-100 tons is operated by compressed air motor, using air at pressure of 80-90 psi. Applicable for handling heavy machinery, sinking piling, straightening steel pipe, pushing pipe. Long trundling handles and collapsible spotting handles make jacks easy to move and place. Solid rubber-tired roller-bearing wheels facilitate easy long-range movements over rough surfaces. Automatic shut-off prevents ram from leaving housing and spilling load. Jacks are easily lubricated through conveniently situated plugs in jack and air motor.—**Duff-Norton Mfg. Co., 2709 Preble Ave., Pittsburgh 30, Pa.**

MEDIUM WEIGHT JACKHAMMER—New machine known as the J-40 Jackhamer weighs 45 lb. and is capable of drilling in any kind of rock. Features include powerful blows, strong rotation of drill steel and plenty of hole-cleaning ability. Double-kicker port valve permits full air pressure on piston for long period. Auxiliary port allows full line air pressure to pass through drill steel when blower valve is opened to facilitate cleaning of deep holes. Machine is specially suited for use with new Carset Jackbits (set with tungsten carbide inserts).—**Ingersoll-Rand Co., Phillipsburg, N. J.**

SCREW ANCHOR AND DRILL KIT—To simplify screw anchoring problems, Sand-Scott plastic expanding screw anchors are now available in an assortment kit along with three carbide-tipped masonry drills. New combination kit offers flexibility on all anchoring jobs since the anchors are universal for mounting screws into all materials. Holub drills are designed for hard materials such as concrete, tile, brick and marble; they can be used with electric or breast drills. Kit includes 325 screw anchors and three masonry drills. Anchors are in sizes and lengths for wood screws No. 5 through No. 20 and ¼- and 5/16-in. lag screws.—**Holub Industries, Inc., Sycamore, Ill.**



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2	2 3/16"	1.90
3	2 3/4"	1.90
5	1 7/8"	1.90
55	2"	1.90
5x	1 3/4"	1.90
6	1 1/4"	1.90
66	1 1/2"	1.90
7	2 1/2"	1.90
8	3"	2.50
9	3 1/16"	2.50
10	3 1/8"	2.50
11	3 1/2"	2.75
115	3 3/4"	3.00
12	4"	3.00
123	4 1/16"	3.00
125	4 1/2"	3.00
14	4 1/2"	3.00

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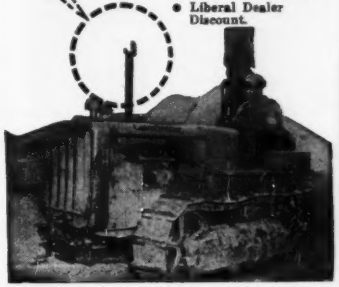

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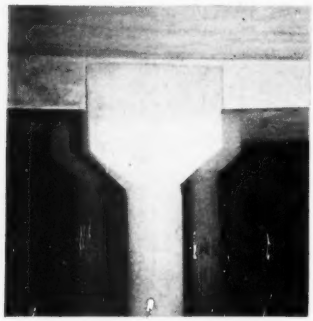
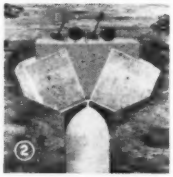
Above—Showing tapered poured cap reinforced for concrete floor beam.



Right—The completed job presents clean, smooth appearance.

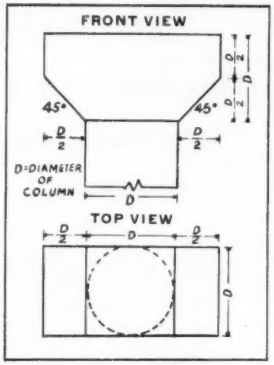
Simple Plywood Cap Detail

1. Plywood cap framed and in position on top of column—ready for pouring.



2. Remove frame and divided form comes off—leaving

3. Completed cap on column connected with reinforcing irons—added reinforcing can be inserted as shown above for concrete floor or ceiling joists.



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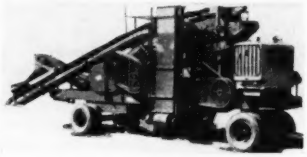
OFF-THE-ROAD TIRES—Designed for rigorous service, new off-the-road tires are now made with nylon cord throughout, including nylon shock shield, for use by contractors and quarry operators. Nylon cord is claimed to be twice as strong as the rayon previously used. In a two-year testing program under tough conditions there was not a single tire blowout. And no flex failures were reported. Tires are made with the company's weftless construction in which there are no cross threads to increase friction; tension of cord is controlled and equalized. Tires are available in wide range of sizes from 11.00-20 up to 21.00-24.—**B. F. Goodrich Co., Akron, Ohio.**



GRAVEL CRUSHING PLANT—Features of small gravel crushing and screening plant include a swivel type feeder conveyor, 12 ft. 6 in. over-all height. All drives are either V-belt or tumbler shaft and gear box. Delivery conveyor folds at the side. Jaw crusher is 10x16 in. and roll crusher 24x16 in. A 30-in.x8-ft. deck vibrator screen provides 40 sq.ft. of effective screening area. Chassis is two-axle with four 9x20-in. tires front and rear.—**Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.**

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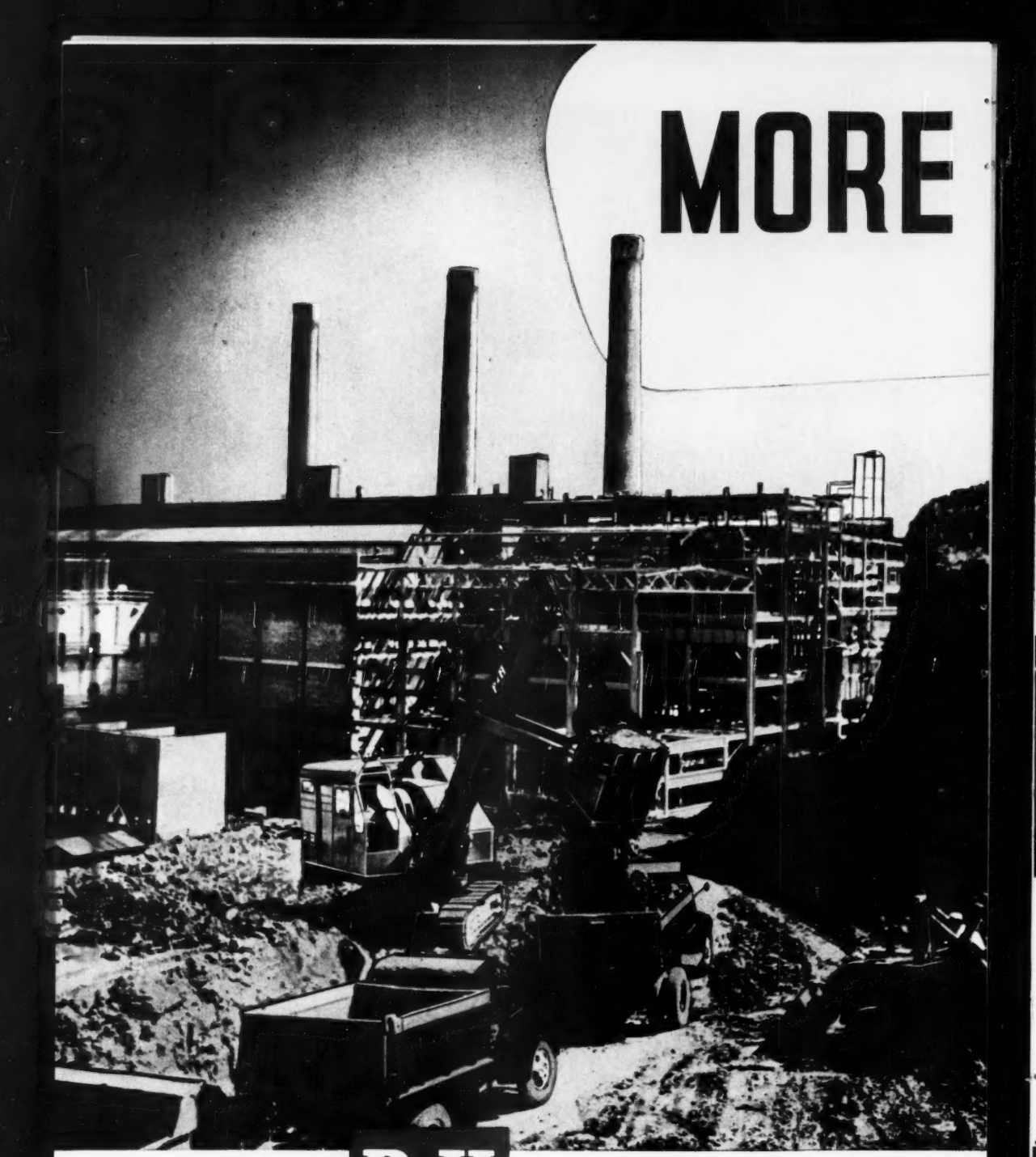

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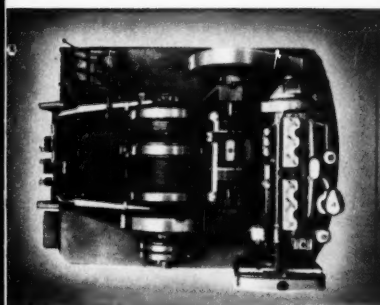
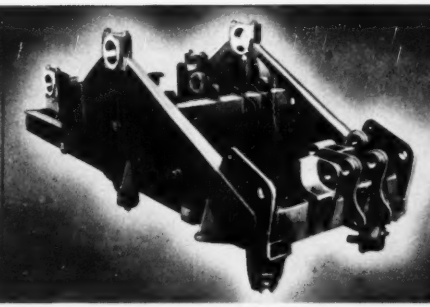


1. YOU SWING LESS DEADWEIGHT. Machinery units on upper deck are placed far back of center to counterbalance digging end. This trims off hundreds of pounds of clumsy ballast — peps up the swing — reduces strain.



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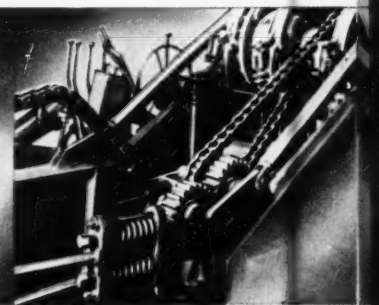

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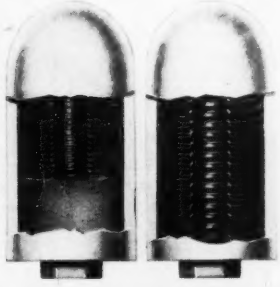
DUCTILE CAST IRON—New engineering material described as ductile cast iron closes gap between cast iron and cast steel. Its physical properties include high elastic modulus, high yield strength and ductility. Production of this iron involves introduction of a small but effective amount of nickel-magnesium alloy. Potential applications of this new material are claimed to be many and varied in machinery and industrial equipment. — **International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.**



WATER HAMMER DEVICE—Sealed air chamber eliminates damaging effects of water hammer. Device involving fabricated metal bellows provides air cushion to absorb water hammer pressure impulse. Device is named "Shokstop."— **Wade Mfg. Co., Elgin, Ill.**

Century

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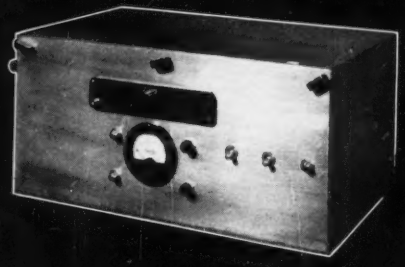

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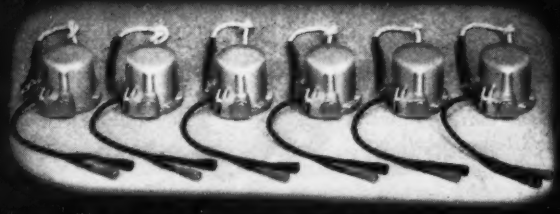

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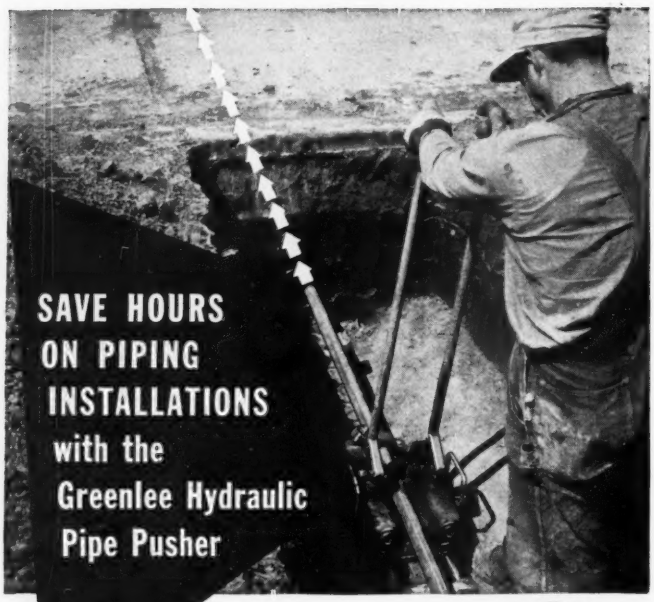

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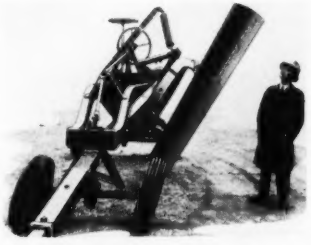
GREENLEE

WRITE GREENLEE TOOL CO., 218 COLUMBIA AVE., ROCKFORD, ILLINOIS for complete data on the above equipment as well as GREENLEE Spiral Screw Drivers • Auger Bits • Expansive Bits • Plumbers' Sets • Hand Benders and many other high quality tools.

LADDER HOOK FOR PAILS—Cast aluminum ladder hook fits over rung and around side of ladder to prevent pails from swinging and spilling during painting or window washing.—**Beauideal, Inc., 821 S. Water St., Saginaw, Mich.**

CHAIN SAW — One-man models available in sizes from 16- to 72-in. blades. Blade swivels 180 deg. and may be locked in any desired cutting position or angle. Can be sharpened in field with hand file. Models weigh 32 and 60 lb. Saws are identified by name "Hornet."—**Southern Distributing Co., Front St., and Central Ave., Cincinnati, Ohio.**



HIGH-LIFT GRADER—Light grader features long or high reach of blade, 8-10 ft., and simplified leaning-wheel construction. Equipped with pneumatic tires, self-locking, raising and lowering device, automotive type steering gear, oil-tight cases for all gears and Timken tapered roller bearings.—**Gledhill Road Machinery Co., Galion, Ohio.**

ANOTHER SMITH TRIUMPH...

New Giant 6 Yard Mixer

50% Greater Capacity

LIGHTWEIGHT
LOW HEIGHT
COMPACT
LOW COST
LONG LIFE

★

BACKED by SMITH...

Giant in Performance and Output!

Again Smith steps out with a great engineering achievement. This time it's a huge 6 Yard Tilter . . . the world's largest concrete mixer . . . 50% bigger than its biggest predecessor. It gives you 50% greater output with the same labor, power and general overhead costs. Just the right batch to fill a 4½ yard truck-mixer (6⅛ yard agitator).

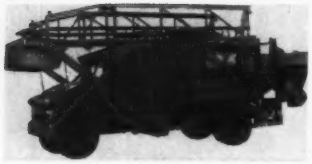
This new 6 yard mixer is a giant in performance and output. But its weight, length, height, initial cost and cost of operation are all surprisingly low. Like all Smith Mixers, this 6 yard Tilter is designed for heavy duty service, with long life and low maintenance cost.

All superior features of Smith Tilters are retained . . . fast loading, rapid discharge without segregation, complete control of discharge and, of course, the famous Smith end-to-center mixing action. The ideal machine for dams and large projects, as well as Ready-Mix plants. Write for new Bulletin 244, just off the press.

THE T. L. SMITH COMPANY
2851 N. 32ND ST., MILWAUKEE 10, WIS., U. S. A.

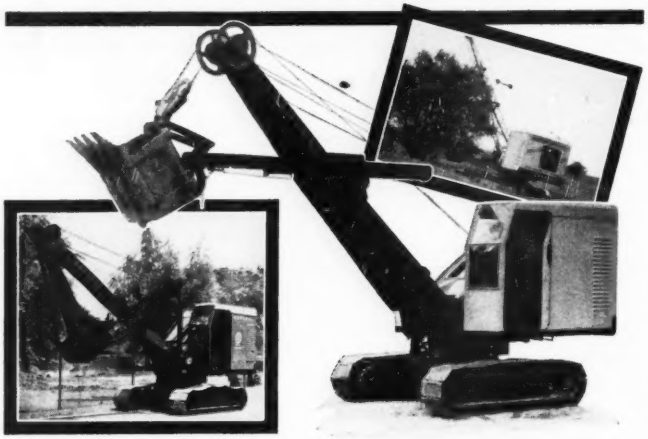
SMITH

CONCRETE MIXER MANUFACTURER SINCE 1900



MIXERMOBILE — New 1-cu.yd. model of Mixermobile has hydraulically operated self-loading skip for receiving batched aggregates directly from dump trucks, portable batching plants or front-end loaders. Unit has 35-ft. steel tower, with 10-ft. extension available. From mixing drum, mixture is transferred by a dumping "spoon" in elevating bucket, then hoisted and poured into storage hopper. Power is furnished by truck motor, an 8-cylinder Ford industrial engine. A take-off unit transmits truck motor power for loading the drum, mixing and hoisting. Folded for traveling, the 1-yd. machine is 24 ft. long, 12 ft. high and weighs 20,000 lb.—**Mixermobile Distributors, 6855 N. E. Halsey St., Portland 16, Ore.**

A PIONEER
of Small Excavating Equipment
...AND STILL A LEADER!

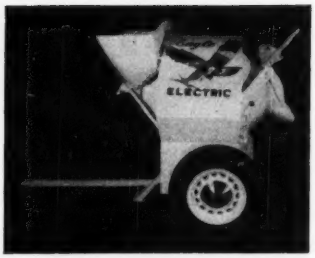


GENERAL SHOVELS, DRAGLINES, CRANES, ETC.
Diesel, Gas, and Electric Powered . . . Wheel and Crawler Mounted. ½ and ¾ Cu. Yds.

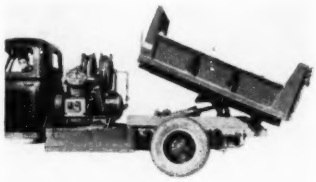
Generals have always been known for speed . . . for strength and power . . . for flexibility . . . for the ability to take punishment day after day and still give uninterrupted performance. Constant improvement of the product through new engineering developments, has added to that reputation.

A typical General achievement is the self-propelled one-man, one-engine crane, on rubber. Similarly, the new General crawler-mounted shovels, cranes and draglines, etc., are making an enviable record of out-performing all other types of equipment of comparable rating. Write today for the latest details.

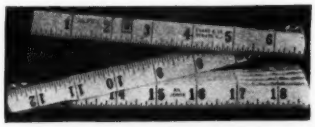
POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS
THE OSGOOD CO. O-G THE GENERAL CO. EXCAVATOR
MARION OHIO
DIESEL, GASOLINE OR ELECTRIC POWERED • ½ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES



ELECTRIC CONCRETE MIXER—Non-tilt Eagle concrete mixer of 3½-cu. ft. capacity is powered by ½-hp. electric motor operating on 110-120 v. Weighing 1,000 lb., machine of trailer type, mounted on two rubber-tired wheels and equipped with chain drive, has the following over-all dimensions: height, 60 in.; width, 60 in.; length, 60 in. Can be plugged into any house current. Unit has dual mixing buckets and blade.—**Sanataga Equipment Co., Inc., 481 Dyer Ave., Cranston 9, R.I.**



TRUCK - MOUNTED AIR COMPRESSOR — Assembly consists of either a 195- or 160-cfm. Auto-Air compressor mounted ahead of a standard dump body on a truck chassis. Compressor is driven direct from truck engine through Davey heavy-duty power take-off. Dump body can be employed to haul rock, broken pavement or other materials dug or dislodged by pneumatic tools served by compressor. Compressor is controlled from driver's seat by one easy-shifting lever. — **Davey Compressor Co., Kent, Ohio.**



FOLDING RULE—A 6-ft. folding rule is made of a pure white material known as "Evanex." Can be bowed tip-to-tip without breaking and will not shrink, stretch, warp or split. Jet black graduations and numerals are fused into surface of material, resultant markings being slightly recessed. Steel joints are brass-plated to resist rust and slats are so molded as to eliminate weak point over joint.—**Evans & Co., Newark, N. J.**

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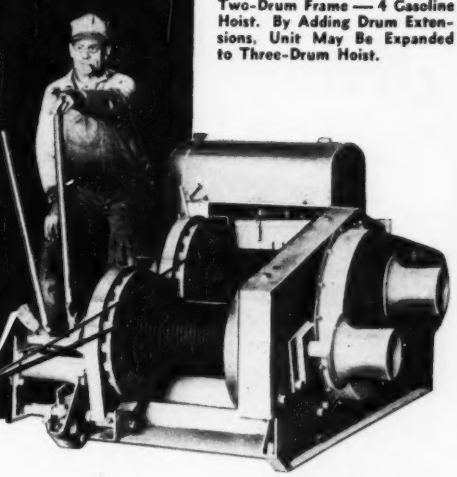
"QUALITY-PLUS"

HOISTS

Lower your Costs

Hoist your Profits!



Two-Drum Frame — 4 Gasoline Hoist. By Adding Drum Extensions, Unit May Be Expanded to Three-Drum Hoist.

ENGINEERED FOR LONG-LIFE DEPENDABILITY

The smoother, easier operation of Clyde Hoists assures **faster, more careful** material handling on construction jobs.

Clyde "quality-plus" Frame-4 Hoists are engineered for maximum efficiency and long-life performance that is unexcelled! All shafts are of high carbon steel and turn on ball bearings. All steel, electric welded frame is of exceptional strength and rigidity but free of unnecessary bulk and weight. And here is another "plus" value that owners and operators appreciate: — at those infrequent intervals when a Clyde Hoist requires maintenance, the easy accessibility and simplified servicing saves time and encourages the operator to keep the hoist in top operating condition.

Whether your requirements call for a one, two or three drum hoist powered by gasoline, electric or diesel unit, it will pay **you** to investigate the complete line of Clyde "quality-plus" Frame-4 Hoists.

OUTSTANDING FEATURES

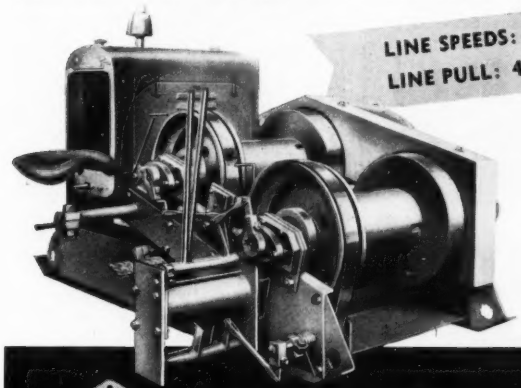
THRUSTS AND FRICTIONS:
Thrusts are full ball bearing screw and yoke type, easily engaged and released. Efficient, simplified cone frictions require minimum care and adjustments.

RATCHETS:
Rugged, positive action rachets are cast on drums. Pawls are visible to the operator for greater safety.

DRIVE:
Chain drive operates in oil bath. Chain adjustments are easily made by means of a new type tightening mechanism. All shafts turn on ball bearings..

DRUMS:
Barrel diameters are of most practical size for the utmost rope economy. Drums are one piece with self-oiling bushings.

POWER:
Choice of gasoline, electric or Diesel.



LINE SPEEDS: 178 to 332 feet per minute

LINE PULL: 4,000 to 5,500 pounds

CONVENIENTLY LOCATED CONTROL LEVERS MINIMIZE FATIGUE AND ACCIDENT HAZARDS

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HOISTS • DERRICKS • WHIRLEYS • ROLLERS
BUILDERS TOWERS • CAR PULLERS
HANDI-CRANES

CLYDE

CLYDE IRON WORKS, Inc.

DULUTH 1, MINNESOTA

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When you need suction hose in a hurry, consider the advantages of Continental's near-at-hand branch warehouse facilities. These factory warehouses, listed below, carry large stocks of hose for every requirement. They're located within reasonable telephone and delivery range. In short, they're equipped and situated to give the prompt, dependable service that helps you keep the job moving — that protects your profit in a job. Get acquainted *now* with Continental Warehouse Service.

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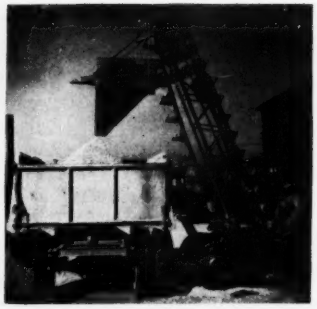
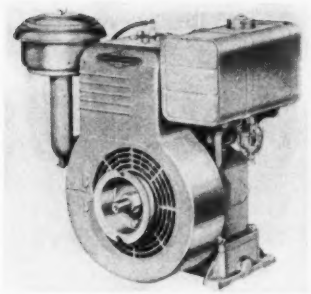
Chicago, Ill.	Indianapolis, Ind.	Milwaukee, Wis.	St. Louis, Mo.
Cincinnati, Ohio	Kansas City, Mo.	New York, N. Y.	San Francisco, Calif.
Cleveland, Ohio	Lancaster, S. C.	Philadelphia, Pa.	Syracuse, N. Y.



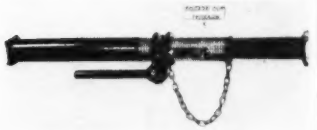
CAR UNLOADER—Bucket-type elevator of tubular steel construction transfers stone, gravel, coal, sand and cement from hopper cars to truck or stockpile at rate of 1½ to 2 tons per min. Requires no concrete pit at track side, readily installed beneath rails and between two ties whose spread need measure only 16 in., or more. Length of elevator is easily extended to required height by installation of additional standard sections. Travel length of elevator is 21 ft. Winch and cable arrangement raises and lowers elevator into position. Powered by 6.8-9.2-hp. Wisconsin air-cooled engine. Discharge height is 9 ft. Elevator complete with buckets weighs 2,650 lb.; feeder, 750 lb.—**Markroy Co., 6th and McCanbridge Sts., Madison, Ill.**

LIGHT WEIGHT INSULATION—Ultralite insulation of fine glass fibers (Fiberglas) weighs only ¾ lb. per cu.ft. and has high thermal value. Furnished in thicknesses of from 1½ to 3 in. and in roll widths from 18 to 60 in. Can be cut with knife or shears. Material is fireproof, rot-proof, flexible, resilient and odorless.—**Gustin-Bacon Mfg. Co., 1412 W. 12th St., Kansas City, Mo.**



AIR-COOLED GASOLINE ENGINES—Three new models of four-cycle air-cooled gasoline engines have ratings from 2 to 8 hp. Equipped with Magnametic ignition system to produce high voltage at low speeds. Inclosed adjustable governor, operating in oil, provides improved speed regulation. New vacuum breather and spring-loaded oil seals prevent oil leaks. Snap-on oil filler cap eliminates necessity for wrench when adding or changing oil. A starter rope or a hand crank, or both, can be furnished.—**Briggs & Stratton Corp., Milwaukee, Wis.**

VIBRATING SCREED — Gasoline-powered vibrating screed will strike off concrete slab 12 ft. wide, leaving surface true to grade. Four sizes are furnished providing spans of 6, 8, 10 and 12 ft. All beams are 3 in. wide, and have depths of 8, 10 and 12 in. Powered by 1½-hp. Power-Pak with built-in vibrator mounted on heavy brackets which are bolted to beam. Vertical adjustment is provided so that beam may be elevated out of contact with side forms.—**Stow Mfg. Co., Binghamton, N. Y.**



TRENCH JACK — Adjustable steel trench jack covers range of adjustment from 1 ft. 6 in. to 5 ft. 6 in. Adjustment of jack is by screwing action involving nut located over a square-cut thread which activates a pin passed through slot in outer section and through closely spaced holes in inner section. Jack has no loose parts.—**Acrow, Inc., 420 Lexington Ave., New York 17, N. Y.**

ON EVERY CONSTRUCTION JOB

"THE HAT THAT TAKES CARE OF THEIR HEADS!"

M·S·A

Skullgard

SKULLGARDS keep their title to greatest popularity in industry through *dependable protection*—proved every day—and lightweight *wearing comfort*—proved every minute! Perfect balance, cushioned sweatband and shock-absorbing inner hammock mean dress-hat wearing ease! A variety of hat and cap styles to choose from—standard head sizes.

THE SKULLGARD WINTER LINING

Warm, snug comfort when cold winds blow! Tailored to fit smoothly, of close-weave greyfall cloth—zips into Skullgard, easily removed. Covers head, ears and back of neck.

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MINE SAFETY APPLIANCES CO.

M·S·A

MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Streets · Pittsburgh 8, Pa.

At Your Service: 54 BRANCH OFFICES IN THE UNITED STATES AND CANADA

New Places for
PREFORMED
WIRE ROPE
Men who build new machines and men who run old ones know that Preformed Wire Rope is an efficient, economical and dependable medium for transmitting motion.
BECAUSE—
• Preformed lasts longer
• Preformed handles easier
• Preformed is safer to use
• Preformed saves installation time
Now is the time to take advantage of the savings Preformed wire rope offers. Ask your supplier about it. Then specify Preformed wire rope on your next order.

PATROL GRADER — Newly designed Trojan patrol grader is 1,000 lb. heavier, has 15 in. greater wheelbase and greater blade range than former models. Special equipment includes front-end loader, cab, scarifier, bulldozer and snow plow. Operator's compartment provides complete visibility of operation and seat with backrest mounted on adjustable spring cushion pedestal. **—Contractors Machinery Co., Inc., Batavia, N. Y.**

ACOUSTICAL TILE—New product named "Fissuretone" is an incombustible rock wool acoustical tile with a fissured surface. Supplied with a factory-applied coat of off-white paint finish with efficient light-reflecting properties. Designed for functionally efficient acoustical ceilings.**—Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.**

SMALL TRENCH DIGGER—Parsons Model 80 "Trenchmobile" is small, sturdy, self-contained, utility-size trench-digging machine. Mounted on four rubber-tired wheels, unit powered by four-cylinder, air-cooled 24-hp. engine has maximum digging depth of 48 in. and digging width of 5-7½ in. Road travel speeds range up to 18½ mph. Boom of box type may be raised or lowered independently while other operations continue. Conveyor is reversible to deposit spoil on either side of trench. All parts of bucket chain are of heat-treated alloy steel. Weight of machine is 5,000 lb.**—Parsons Co. (Koehring subsidiary), Newton, Iowa.**

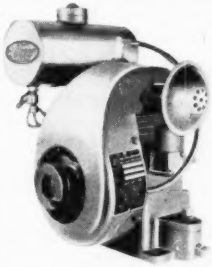
GREATER YARDAGE! LOWER COST!

WELLMAN *Williams* WELDED BUCKETS

Wellman Buckets cost less to maintain because they are ruggedly built. They deliver bigger payloads because they are properly designed. The superior engineering in Wellman Buckets gives the operator better balance, easier handling, cleaner digging. Wellman pioneered the unique construction that pays off in greater yardage at lower costs. There's a Wellman Bucket for every service.

THE WELLMAN ENGINEERING COMPANY
7017 CENTRAL AVENUE CLEVELAND 4, OHIO

LAUSON POWER is DEPENDABLE Power!



- Lauson dependability gets the job done — provides plus power for pumping, vibrating and countless other construction jobs.
- Sizes from ¾ to 5 H. P. 4-Cycle, Air-Cooled.
- Light weight — instant starting — economical operation.
- Machined mounting pad on crank case for direct mounting of pumps, generators, etc.

NATION-WIDE LAUSON SERVICE AVAILABLE EVERYWHERE

Dept. CM, The LAUSON Company, New Holstein, Wis.

LAUSON

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ENGINE BUILDERS FOR OVER 50 YEARS!

What would it cost to replace your essential business records?

Have you ever stopped to consider what a heavy investment in work and money has gone into your business records—the correspondence files, specifications, engineering data, drawings and blueprints, employee and payroll records, and all the other vast accumulation of facts that are essential to your daily operations?

Estimate the value represented and you'll have some idea of the expense you'd be put to just to restore the indispensable portions of this information, should it be lost, destroyed, or substantially damaged by fire, flood, explosion, or any other cause.

The possibility of a loss is such a serious risk, and would cost you so much money, that it should be covered by insurance. Ideal for the purpose is the Hartford Valuable Papers Insurance Policy which:

1. Covers business records and all papers* used in business activities, against loss due to fire, explosion, windstorm, theft, and any other cause (except misplacement or mysterious disappearance, wear and tear, deterioration, vermin, and acts of war).
   *Currency, stamps, coupons and securities, checks, drafts, notes, or other written evidence of indebtedness or obligation *are not covered* by the policy.
2. Covers such property in your office, in transit to a place of greater security, and in the more secure location. Papers taken off the premises for business purposes are covered up to 10% of the total insurance carried, subject to a limit of $5,000.
3. Guarantees that the Hartford will either replace or reproduce lost or damaged records or papers, or pay in cash up to the limits of insurance carried an amount equal to the *actual costs* of making such replacement. (Unless specifically insured for a higher amount, there is a limit of 5% of the total insurance on any one record or paper, subject to a maximum payment of $5,000.)

Your Hartford agent or your own insurance broker will gladly furnish details of this *low-cost,* broad protection. In over 5000 communities you can secure the name and address of the nearest Hartford agent quickly by calling Western Union by number and asking for "Operator 25." Or write the company for a sample policy.

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Year in and year out you'll do well with the Hartford

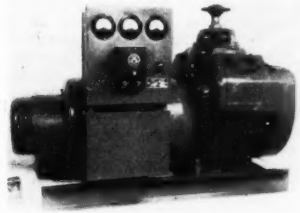
STEEL DOOR FRAME—All-welded door frame of steel is shipped as a complete unit. Made with extra reinforcement in all four corners of mitered joints. Uses a universal adjustable brass strike plate. Finished with aluminum paint. Each frame is designed for $1\frac{3}{4}$- and $1\frac{3}{8}$-in. doors. Frames are warp-proof, durable and fire-resistant. — **Steelcraft Manufacturing Co., Rossfoyne, Ohio**

PRE-MOLDED JOINT-SEALING STRIP—Insures watertight sealing of vertical and overhead concrete joints. Para-Plastic strip can be nailed directly to concrete form. Available in three types: for sealing vertical and overhead joints, expansion and contraction joints at subgrade, and as a coated sponge rubber as a pressure seal for vertical angles and overhead joints. — **Servicised Products Corp., Chicago, Ill.**

PIPE WRENCH—New lightweight heavy-duty pipe wrench named "Roxo" has only four parts. Engineered design involves new patterns, dies and metallurgical formula. Claimed to be lighter in weight and stronger than comparable wrenches of similar types. Made only in 14-in. size at present, although other sizes will soon be in production.— **Trimont Mfg. Co., 55-71 Armory St., Roxbury, Boston 19, Mass.**

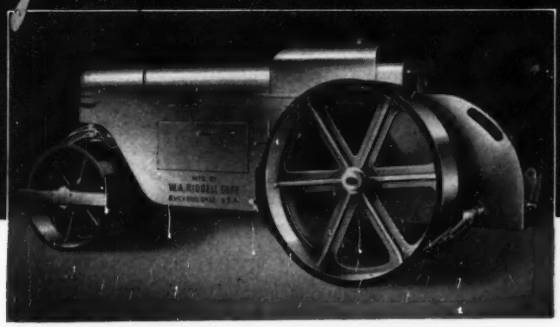
POWER LOADER ATTACHMENT —For discharging concrete batches to forms above ground level or into trucks, a power loader attachment can be fitted to either the Model 11-S or 16-S Kwik-Mix concrete mixers. Maximum discharge height is 9 ft. 2 in. Bucket handles a full batch directly from the discharge chute of the portable concrete mixer. Discharge at top of tower is automatic; bucket travel and discharge are completed during time following batch is being mixed in drum. Operated by special hoist, the loader is controlled by a single lever located on the operator's platform. Hoist is mounted within the mixer frame and is powered by mixer motor. For job-to-job movements, tower can be collapsed quickly and positioned for ample road clearance.—**Kwik-Mix Co. (Koehring subsidiary), Port Washington, Wis.**

LIGHTWEIGHT DIESEL PARTS— Weight reduction of from 6½ to 8 percent in Cummins diesel engines are made possible by a new series of lightweight parts. For various models of Cummins diesel engines weight reductions range from 151 to 194 lb.—**Cummins Engine Co., Columbus, Ind.**



STANDBY ELECTRIC POWER PLANTS — Plants for emergency supply of electricity for power and light are powered by air-cooled engines equipped with high-tension magnetos, permitting easy hand-cranking. Model illustrated is 10-kw. generator powered by 29-hp. 4-cylinder air-cooled engine. Unit is 50 in. long, 33 in. high, 28 in. wide and weighs 825 lb. Designed to run at 1,800 rpm.—**Kato Engineering Co. Mankato, Minn.**

DEPENDABLE ROLLING *job after job*



HERCULES 10 and 12 ton 3-wheel Road Rollers

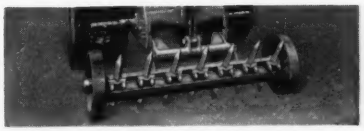
- Efficient WAUKESHA Engine
- Low Maintenance Cost
- Easy to Operate and Steer
- Rugged Top-Quality Construction

You'll find the heavy-duty HERCULES roller you need in this list of models:

Model No.	Description
10D51	10-Ton Roller, Waukesha Diesel 51 HP
10G54	10-Ton Roller, Waukesha Gas 54 HP
12D51	12-Ton Roller, Waukesha Diesel 51 HP
12G54	12-Ton Roller, Waukesha Gas 54 HP
12D51-WB	12-Ton Roller, Waukesha Diesel 51 HP (20" WATER-BALLAST Front and Rear Rolls)
12G54-WB	12-Ton Roller, Waukesha Gas 54 HP (20" WATER-BALLAST Front and Rear Rolls)

HYDRAULICALLY CONTROLLED SCARIFIER

The depth of cut of the HERCULES scarifier is regulated by a specially designed tooth bar supported at each end by gauge wheels. The scarifier is hydraulically controlled.



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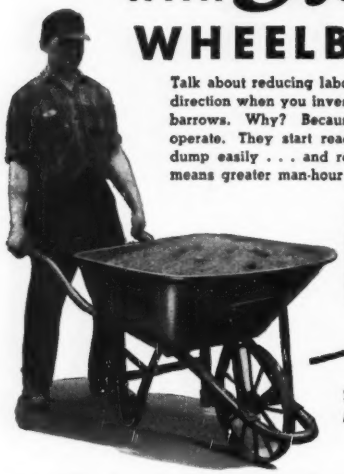
BUCYRUS, OHIO • U.S.A.

Builders of WARCO Motor Graders and HERCULES Road Rollers

You're on the Right Track...

WITH Sterling WHEELBARROWS

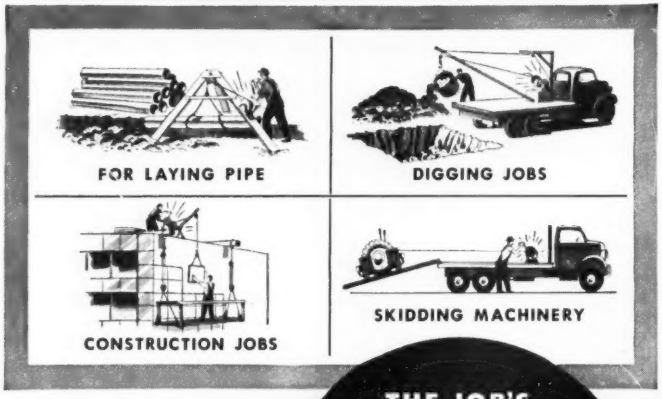


Talk about reducing labor costs. You're headed in the right direction when you invest in sturdy, all-steel Sterling Wheelbarrows. Why? Because Sterlings require less effort to operate. They start readily . . . roll along smoothly . . . dump easily . . . and result in less operator fatigue. This means greater man-hour production for your transport jobs.

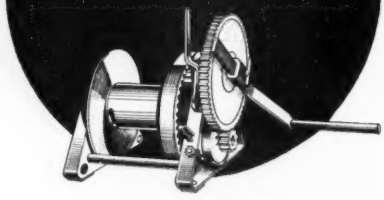
Look for this mark on every Sterling.

Get all the facts about Sterling's tubular steel barrow. Write for new Sterling Cat. #58.

STERLING WHEELBARROW CO.
MILWAUKEE 14, WIS., U. S. A.



THE JOB'S A CINCH...WITH HANDIWINCH



One man lifts or pulls loads up to 10,000 lbs. with the AMERICAN HANDIWINCH. Simple, rugged, weighs only 95 lbs. Carries easily, sets up anywhere. Cut steel gears, two gear ratios. Has demountable tail yoke. Triple-width drum model also available. Sold everywhere; made by AMERICAN HOIST AND DERRICK CO., ST. PAUL 1, MINNESOTA.

ALSO MAKERS OF GENUINE CROSBY CLIPS AND AMERICAN BLOCKS AND SHEAVES.

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

PORTABLE BELT CONVEYORS—The versatility, adaptability and capacities of Model 363 portable belt conveyors made in lengths of 25, 30 and 35 ft. with plain or cleated belts, are outlined in a booklet. Two pages of applications suggest possible uses. Drawings show how the conveyor may be adapted to many conditions. Stressed are the extra quality materials and careful construction of the "363." Noteworthy features are described. One page outlines other types of Barber-Greene belt conveyors that are available and pictures typical installations in which B-G equipment is used to reduce handling costs of bulk materials in all industries.—**Barber-Greene Co., Aurora, Ill.**

VIBRATION CONTROL — Typical installations in which cork may be satisfactorily used to control transmission of vibration and noise, installation data, and information on specification writing are given in a new illustrated bulletin. Five convenient forms are listed and their construction described, together with the static load ranges for each form ranging from 400 to 30,000 lb. per sq. ft. and dimensions in which they are available.—**Korfund Co., Inc., 32d Place, Long Island City 1, N. Y.**

SWIMMING POOL EQUIPMENT—A new booklet describes the latest equipment for recirculation, filtration, chlorination, softening and pH control. Manual and automatic valves are explained and many installations are illustrated. A complete line of accessories, such as suction cleaners, heaters and test kits, is described. Complete specifications are given.—**The Permutit Co., 330 W. 42nd St., New York 18, N. Y.**

ARCHITECTURAL CONCRETE UNITS—A handsome booklet gives photographs and data showing the use of architectural concrete units on the Prudential Building, Los Angeles, Calif., the exterior of which is built of these units with fluted terra-cotta window spandrels. The remarkable whiteness of the units is achieved by the use of Trinity White portland cement and white quartz.—**General Portland Cement Co., 111 W. Monroe St., Chicago 3, Ill.**

"WHAT PRICE ABRACADABRA?"

Abracadabra is expensive. Many of you found that out years ago. You practically had to use black magic to figure your costs which were based on truck mixer operation. Indefinite capacities, "outlaw" sizes, rapid changes in ratings—all combined to make abracadabra confusion a big expense.

That's why the Truck Mixer Manufacturers Bureau was formed—to eliminate that costly abracadabra. We set standards which guarantee size and capacity. And we put a rating plate on each truck mixer. The Bureau has taken the mumbo-jumbo out of figuring truck mixer operating costs, and erased the confusion of "outlaw" sizes.

We think you prefer it this way—with established standards and a rating plate to guarantee size and capacity. Look for that plate, and read it with confidence.

2 CUBIC YARD MIXER
GUARANTEED TO HOLD MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
3 CUBIC YARD AGITATOR
N.R.M.C.A. REGISTERED

Truck Mixer Manufacturers Bureau

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION
Pittsburgh, Pa.

CHAIN BELT COMPANY
Milwaukee, Wis.

CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.

THE JAEGER MACHINE COMPANY
Columbus, Ohio

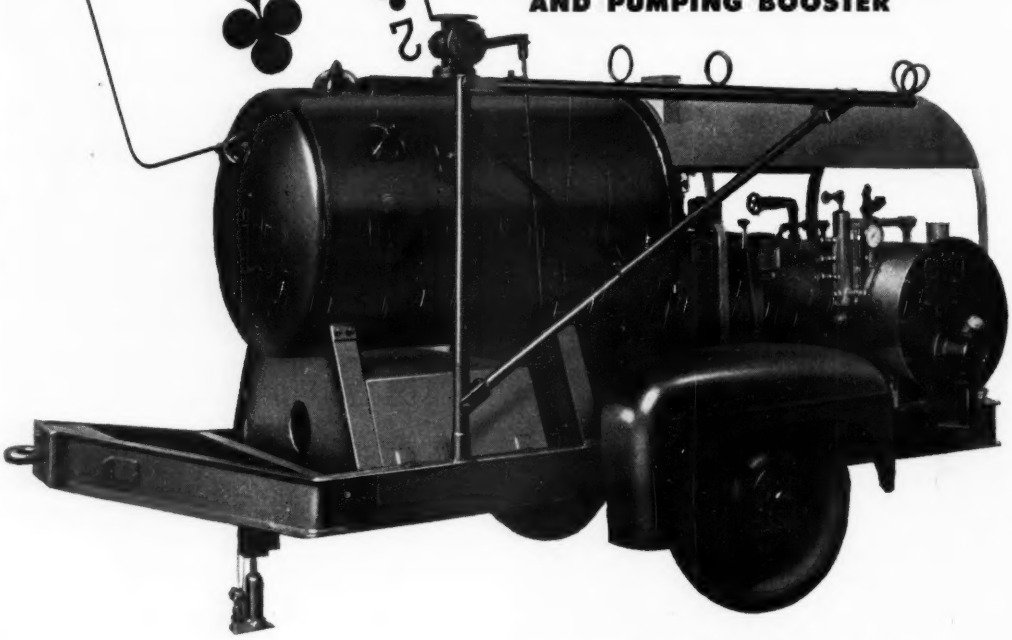
WORTHINGTON PUMP & MACHINERY CORP.
RANSOME DIVISION, Dunellen, N. J.

THE T. L. SMITH COMPANY
Milwaukee, Wis.

Announcing the

Cleaver-Brooks "Deuce"

COMBINATION TANK-CAR HEATER AND PUMPING BOOSTER



★ A PORTABLE STEAM BOILER ★ A DIRECT-FIRED HEATER ★ IN ONE MOBILE UNIT

HERE'S the answer to fast, low-cost heating of pumpable bituminous material — in one compact mobile unit, easily moved to location with one motor truck. Heats and transfers bitumen 4 times as fast through the direct oil-fired pumping booster.

In addition, you have a fast steaming, economically operating tank car heater. A combination unit that offers substantial savings as compared to purchase of two separate units.

Over 10 h.p. 125 lb. W.P. oil-fired, four-pass, horizontal fire tube boiler — ASME code constructed and so stamped, conforming to all State and Local Codes, equipped with condensate system mounted together with direct fired pumping booster on single sturdy frame — skid mounted or 2-wheel trailer mounted.

Write for further information.

SPECIFICATIONS

	Skid	Rubber-Tired Trailer
Over-all length, in.	159	185
Over-all width, in.	66	81
Over-all height, in.	71	90
Shipping weight, lbs.....	6350	7080

RATINGS

Steam Boiler — 10 H.P — 125 Lbs. W.P.
Operating burner at full capacity and pumping materials:

Approx. 300 G.P.M. temperature rise	25-35° F.
Approx. 180 G.P.M. temperature rise	45-55° F.
Approx. 100 G.P.M. temperature rise	85-95° F.
Approx. 50 G.P.M. temperature rise	170-180° F.

HEATS 10,000 GALLON CAR 35-45° F., PER HOUR.

CLEAVER-BROOKS COMPANY, 387 E. Keefe Ave., Dept. F, Milwaukee 12, Wis.

BUILT BY THE PIONEERS AND ORIGINATORS OF TANK-CAR HEATERS . . . BITUMINOUS BOOSTERS

STUD WELDING GUN—Twenty-four picture paragraphs covering as many popular uses of the Nelson stud welding gun are included in a new 8-p. catalog of manufacturing and construction applications. Typical production units and a wide range of special studs are shown along with a concise description of the Nelson method of fastening to metal.—**Nelson Stud Welding Division, Morton Gregory Corp., Lorain, Ohio.**

CORD CONVEYOR BELTS—Featuring material on its Cord conveyor belts, which it claims have many advantages over those made with conventional fabric in the most rigorous services, a new 6-p. catalog section on conveyor belting has been published. The catalog section fully describes construction of the Cord belt, which the company says has from two to six times the impact resistance of fabric belts, and lowers belt and conveyor costs when installed. Features of the belt are lines of parallel cords, each completely coated with rubber, giving the plies of cord and rubber practically the same impact resistance as the cover because the cords can spread apart under a blow.—**The B. F. Goodrich Co., Akron, Ohio.**

FUEL TRANSFER PUMPS—The **"Utility Master"** is a low-cost, hand-operated barrel-type pump of special value in connection with outdoor construction machinery like power shovels where a dependable transfer pump is required, and, also, for portable use with necessary equipment for pumping from barrels and skid tanks. It is light weight and compact.—**Lear, Inc., Romec Pump Co. Division, Elyria, Ohio.**

ENGINEER'S TRANSITS—Two-color reproductions of an engineer's transit are available free. The 18x24-in. cardboard-mounted photographs are laminated and ready to hang. They were prepared especially for classrooms, libraries, offices, etc., particularly suited for visual education training and display purposes.—**The David White Co., 315 W. Court St., Milwaukee, Wis.**

LIGHTWEIGHT SPREADER — A circular gives data and illustrations concerning a new lightweight bituminous spreader used for laying plant-mix bituminous paving materials for roads, parks, streets, playgrounds, airports, sidewalks, driveways and tennis courts. The spreader is towed behind a dump truck which feeds the materials into the spreader box, and preliminary compaction is obtained by adjustable rollers attached to the rear of the spreader itself.—**I. J. Overman Mfg. Co., 3301 S. Torrance St., Marion, Ind.**

"It's *yardage* that counts! And my MICHIGAN has convinced me that you don't always need a big dipper to get big yardage. No matter what I put her on—sand, gravel, clay, rock—that baby *really* goes to town! Gets out more yardage per hour than any shovel that size I've ever owned. She crowds and swings fast, and dumps fast and clean. When anyone says truck shovels to *me*, I say, 'my *next* one's a MICHIGAN, too!' For the best 'buy' in a truck shovel, get a MICHIGAN!"

Write for Bulletin 100—
"On the Job With MICHIGAN"

DID YOU KNOW you can buy a brand new **MICHIGAN TRUCK CRANE** complete with chassis for as little as $10,250 F.O.B. factory?

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
495 SECOND STREET, BENTON HARBOR, MICHIGAN, U.S.A.

CLEARING METHODS — Clearing methods for construction sites, mine and quarry operations, housing projects, and applications in the export field are featured in the new Caterpillar Tractor Co. 15-p. illustrated booklet "Clearing for Action."—**Caterpillar Tractor Co., Peoria 8, Ill.**

ROTARY POSITIVE BLOWERS—A 20-p. bulletin, printed in two colors, opens with a foreword outlining some of the principal uses for rotary positive blowers. Operating advantages and principles are discussed, accompanied by several performance curves under various operating conditions. Separate pages are devoted to the four standard types of blowers as now being offered, showing complete views and cross-section of each, with condensed specifications covering the four types. — **Roots-Connersville Blower Corp., 900 W. Mount St., Connersville, Ind.**

BEAUTIFYING CONCRETE — A booklet entitled "How to Beautify and Protect Concrete, Stucco and Masonry" develops the theme that the best way to protect concrete, stucco and masonry against disintegration, stain, dirt and efflorescence is to cover the surface with a protective paint or coating made especially to go over these surfaces and to adhere to them indefinitely. Medusa paint has a base of Portland cement and has a natural affinity for mortar, concrete and stucco.—**Medusa Products division of Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland 15, Ohio.**

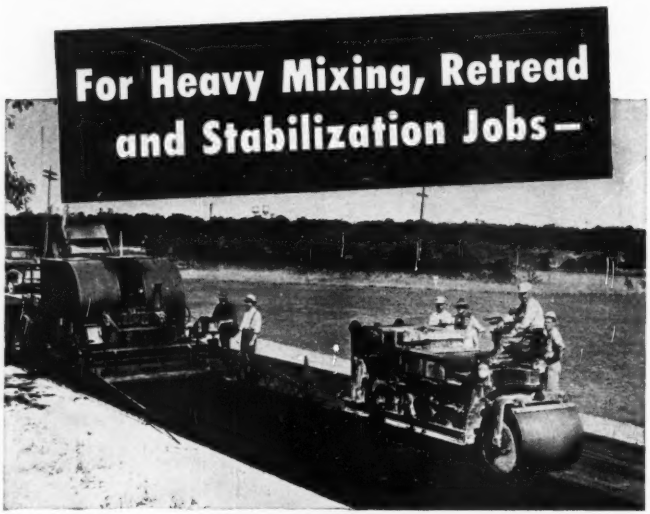
METAL PARTITIONS—Here is a 56-p. catalog that is really a practical working tool for all who deal with the problems of flexible division of interior space. Among the features of movable metal partitions discussed are economy, architectural design, structural stability, adaptability to changing space needs, sound control and provisions for easy electrical wiring.—**The Mills Co., 975 Wayside Road, Cleveland 10, Ohio.**

ELECTRIC CAR PULLERS—A booklet describes capstan, drum and continuous rope types of American electric car pullers for efficient low cost car spotting. This company has also issued new catalogs on blocks and sheaves and the economical portable utility hoists.—**American Hoist and Derrick Co.. St. Paul 1, Minn.**

PLYWOOD CUTTING CHART—A 1-sheet chart is a plywood cutting calculator. By the use of this chart plywood purchasers ought to save a lot of office work and effect economies by using smaller panels in some cases.—**Davis Plywood Corp., 12555 Berea Road, Cleveland 11, Ohio.**

RUNWAY LIGHT—The construction, performance, and installation of the Westinghouse Type HL High Intensity Runway Light are discussed in an 8-p. booklet. This CAA light is suitable for use under diverse weather conditions. It is actually two units in one, a high-intensity light for low visibility conditions, and a standard elevated runway light for normal visibility conditions. —**Westinghouse Electric Corp., Box 868, Pittsburgh 30, Pa.**

CONTROL JOINTS—A reprint from the Structural Bureau of the Portland Cement Association gives information about a rubber control joint strip which is being used effectively on architectural concrete structures. All masonry materials shrink and swell upon loss and gain of moisture and such volume changes set up stresses of considerable magnitude in any structure because there is always some restraint against free movement between the component parts. Therefore, this information about the use of this type of control joints in walls at proper intervals is important to builders—**Williams Form Engineering Corp., Grand Rapids, Mich.**



The New Heavy-Duty Moto-Paver

Although developed primarily to meet the rugged conditions of hilly and mountainous terrain, the heavy duty Moto-Paver is proving equally efficient under widely differing conditions in other sections of the country.

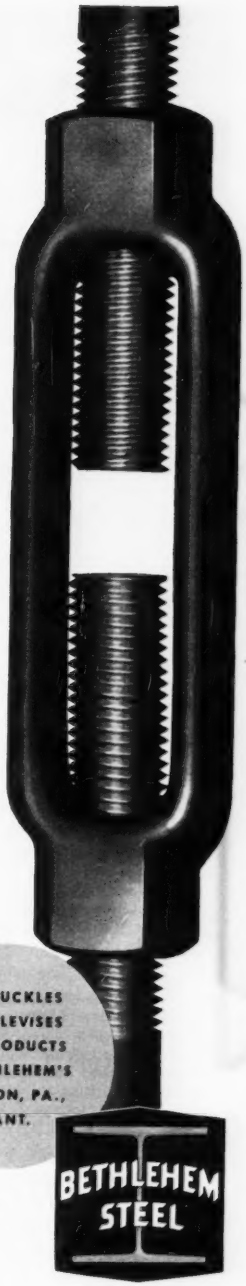
Wherever you have a heavy bituminous mixing, retread or stabilization job, it will pay you to investigate this new and more powerful Moto-Paver. It does the *complete mixing* and *laying job—in one continuous operation.* See your local distributor or write direct for specifications and complete information.

The Moto-Paver is a very flexible as well as a mobile unit. The illustration shows it being used as a stationary mixing plant.

Hetherington & Berner Inc.

735 KENTUCKY AVENUE, INDIANAPOLIS 7, INDIANA

For the Construction Jobs Ahead



TURNBUCKLES

Made with 6-in. openings between heads. Either right- or left-hand threads, with or without stub ends. Some sizes are furnished with 9-in. and 12-in. openings.

CLEVISES

Made in sizes Nos. 2½ to 5, and in thread sizes ⅝ in. to 2⅛ in. Threaded to American Standard Coarse Thread Series, Class 2. Supplied with right- or left-hand threads, with or without pin and cotter.

TURNBUCKLES AND CLEVISES ARE PRODUCTS OF BETHLEHEM'S LEBANON, PA., PLANT.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

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Other Bethlehem Construction Fastenings

Tie-Rods • Spikes • Rivets • Sleeve Nuts • Timber Bolts

Standard and Special Bolts

"Fastens quicker than lightning"

says JOE RAMSETTER

Slash fastening time and costs—set steel pins and studs instantly into steel or concrete with RAMSET SYSTEM

In 30 seconds, from start to finish, you can "nail" wood, steel and other hard materials to steel or concrete. You can set threaded studs for an endless variety of fastening jobs.

Cut costs! Users show savings up to 60% in time and materials over old-fashioned methods.

Save time! Get your work finished amazingly faster. Avoid costly delays caused by time-consuming drilling and plugging.

Easy to use! Light, compact RAMSET TOOL requires no electric or air lines—it's self-powered. Any good workman can learn "Ramsetting" in 30 minutes—and can set up to 50 fastenings in an hour.

Get details! Ask for 15-minute demonstration of how RAMSET SYSTEM can save you time and money—get your work completed faster, more profitably. Use the coupon.

Ramset FASTENING SYSTEM

Stemco Corporation, Cleveland 16 (Rocky River), Ohio.

In Canada—Globe Machine Tools, Batawa, Ontario.

MAIL THIS COUPON CM-6

Stemco Corporation,
Cleveland 16 (Rocky River), Ohio

Please send details and arrange 15-minute demonstration of RAMSET FASTENING SYSTEM. No obligation, of course.

Name_____

Company_____

Address_____

PLASTER FIREPROOFING—It is said of Vermiculite plaster fireproofing that its light weight and high fire resistance have reduced costs and permitted many buildings to be built that would otherwise still be "on paper." A booklet contains essential facts and gives an explanation for the high fire resistance obtained with Vermiculite plaster; an analysis of the savings in dead load and steel by the use of this material; construction views of jobs located in all parts of the country; typical fireproofing details, and a summary of fire tests made on construction using the plaster as the fireproofing material.—**Vermiculite Institute, 208 So. LaSalle St., Chicago 4, Ill.**

HARD WATER TROUBLES — A booklet on zeolite water softeners and ion exchangers describes the troubles caused by hard water, outlines the properties of ion exchangers, explains and illustrates the most up-to-date ion exchange equipment. A description of the new manually or automatically controlled multiport valve is also given.—**The Permutit Co., 330 W. 42d St., New York 18, N.Y.**

"AMBASSADORS ON WHEELS"—Drivers who operate a fleet of 30 trucks delivering ready-mixed concrete in Pittsburgh and Western Pennsylvania get a thorough indoctrination in company policies and customer relations in a 34-p. two-color booklet titled, "Your Job at Dravo." It was prepared for drivers joining the organization by the Keystone Division. A chapter explains concrete-mixing technique, giving the driver a fundamental knowledge of the various types of concrete mixes and their application. More than 30 cartoons are used to illustrate various subjects discussed.—**Dravo Corp., 5th and Liberty Aves., Pittsburgh 22, Pa.**

WANT TO SEE YOUR NAME AND PICTURE IN PRINT?

GET IN on the monthly CONSTRUCTION METHODS prize picture contest. Send us your interesting shots of construction operations and qualify for three cash prizes—$25—$15—$10 each month. Non-prize winning pictures may bring you $5 each if published. See the announcement on page 40 of this issue.

DRAGLINE BUCKETS—A revised edition of "How to Get the Most out of a Page Automatic Dragline Bucket" is now available. This 20-p. booklet details information on dragline operations. How to select the right size bucket, how the bucket operates, how to use it and care for it to get maximum production, are a few of the subjects discussed and illustrated.—**Page Engineering Co. Clearing Post Office, Chicago 38, Ill.**

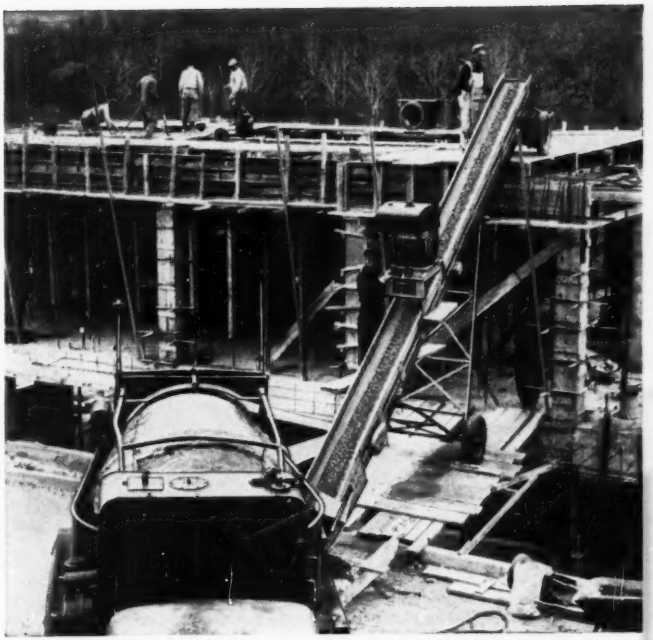
ROLLER CHAINS—A 12-p. catalog contains helpful information regarding the use and specification of roller chain. It describes new features for safety, wear, and maintenance found in Atlas Chain as well as its operating characteristics. Photo-micrographs, engineering drawings, and component photographs illustrate construction from complete assembled chain down to metallurgical characteristics. Specifications and prices for most sizes of American Standard Roller Chain—and attachments—also are included.—**Atlas Chain and Manufacturing Co., Castor & Kensington Aves., Philadelphia 24, Pa.**

ELECTRODES—"How to Choose and Use the Correct Electrode" is explained in a booklet with that title available on request.—**The Champion Rivet Co., Harvard Ave. & East 108th St., Cleveland 5, Ohio.**

HOSE COUPLINGS AND CLAMPS—An illustrated, condensed catalog describes the complete line of LE-HI hose couplings, clamps, air valves and manifolds. A safety-locking universal coupling with self-locking springs is a featured item in the section dealing with universal type quick detachable air hose couplings. —**Hose Accessories Co., Philadelphia 32, Pa.**

MOTOR GRADER MANUAL — A new service manual covering the operation, maintenance and major repair of the AD-3 and AD-4 motor graders has just been released. The 278-p. book features 26 sections ranging from descriptions and specifications to fits and tolerances.—**Allis-Chalmers Mfg. Co., Tractor Division, Service Dept., Box 512, Milwaukee 1, Wis.**

PRE-PLATED METALS—A handy index to a wide selection of pre-plated metals is the new Nickeloid metal sampler and file folder. The die-cut sampler, a 4-p., letter-size folder, contains samples of Nickeloid metals finished in chrome, copper, nickel and brass—available on zinc, steel, copper, brass and aluminum bases. In addition to actual samples in bright and satin finishes, striped and crimp designs, complete data is given on the sizes of sheets, coils and flat strips available.—**American Nickeloid Co., Peru, Ill.**



Farquhar Trough Conveyors

Cut Overhead, Increase Profits

on ALL Construction Jobs

FARQUHAR Trough Conveyors cut overhead by *releasing manpower* from materials handling jobs to do more *actual construction work!* Contractors save *time, money, labor* with Farquhar Conveyors because (as the illustration shows) they can move wet concrete directly from mixer to work area without concrete loss due to repeated handling. Farquhar Trough Conveyors help you get jobs completed without delay, help eliminate profit losses due to failure to meet penalty dates!

For All Handling Jobs

General-utility Farquhar Trough Conveyors handle sharp or abrasive materials, fine or powdery materials, small bags or bundles *faster, better, cheaper* than old-fashioned handling methods. Farquhar Conveyors assure speedier handling, stop waste of time, manpower, and give you greater flexibility for *all* operations! Contractors, chemical plants, coal yards, warehouses—all industries turn to Farquhar for the right answers to specific handling problems. Farquhar offers a complete line of conveyors for portable, semi-permanent or permanent use, handling all kinds of loose or packaged materials. Tell us your problem—we have the know-how to help you.

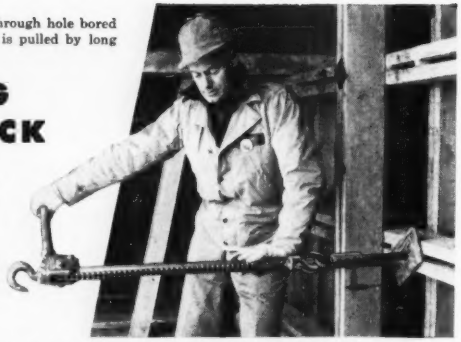
MOVING DIRT *from basement excavation direct to dump truck with gas engine-driven Farquhar 334-T Conveyor saves time for contractor . . . hard, back-breaking work for men.*

Write: A. B. FARQUHAR COMPANY, *Conveyor Division,* **222 Duke St., York, Pa., or 622-A W. Elm St., Chicago 10, Ill.**

Farquhar
PORTABLE OR PERMANENT MATERIALS HANDLING
CONVEYORS

HYDRAULIC PRESSES - FARM EQUIPMENT - FOOD PROCESSING AND SPECIAL MACHINERY

Threaded tie rod extends through hole bored in base of Hoist-Jack. Rod is pulled by long nut with welded loop.



COFFING HOIST-JACK *pulls* **FORM RODS** *quickly*

. . . SAVES TIME, MATERIALS

You can save valuable time and steel, eliminate expense of tubes by pulling form tie rods with a Coffing Hoist-Jack. With base against form, this powerful tool simply hooks onto tie rod, "jacks" it out—quickly, safely, No damage to rods, no tubes left in form, rods are ready to use again. Hoist-Jack has 44-in. lift, weighs 23 lb., has plenty of "pull" to overcome adhesion of concrete to rods.

It's a Hoist . . . a Jack . . . a Puller

With stand, the Hoist-Jack is a powerful high-lift jack. Without stand, it's ready for all hoisting, pulling, load binding jobs. "Safety-load" handle protects against overload. Two rugged models—2000 and 4000 lb. capacity. For complete information write for bulletin D6HJ

COFFING

COFFING HOIST COMPANY, Danville, Illinois

Quik-Lift Electric Hoists — Safety-Pull Ratchet Lever Hoists — Mighty Midget Pullers — Spur-Geared Hoists — Differential Chain Hoists — Load Binders

FLEXCO HD BELT FASTENERS AND RIP PLATES

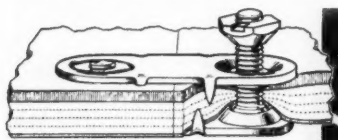
FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

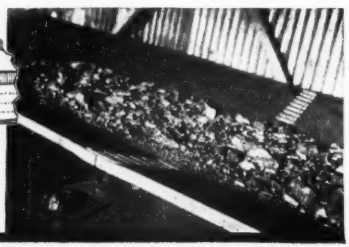
Flexco HD Fasteners make a tight, butt joint of great strength and durability . . . distribute the strain uniformly. Operate smoothly over flat, crowned or take-up pulleys. Made of steel, Monel, Everdur and Promal.

Flexco Rip Plates are for repairing and patching damaged belts.

Ask for Bulletin F-100

FLEXIBLE STEEL LACING COMPANY • 4699 Lexington St., Chicago 44, Illinois





Strong, Smooth, Readily Troughing
Order From Your Supply House

BETTER FLOORS—A booklet "Materials for Better Floors" contains extracts from an article "If You Are Installing a Concrete Floor, Install a Good One." This article and other data presented have been carefully checked by cement technicians and specialists in heavy-duty floors.—**Floor Material Industries, Inc., 630 Fifth Ave., New York 20, N. Y.**

WASHING PLANT—An 8-p. folder, profusely illustrated, with a full 2-p. cut-away drawing in two colors describes a completely redesigned 305-W washing plant for sand, gravel and crushed aggregates. The plant scrubs, cleans and washes 50 to 75 yd. of aggregate per hr. It has a revolving scrubber drum and revolving screen capable of separating three sizes of stone and sand and depositing them in bins under the plant for truck loading. One-man operation and low initial cost of the equipment make the plant profitable for washing and cleaning aggregate. —**Pioneer Engineering Works, Minneapolis 13, Minn.**

PORTABLE COMPRESSOR—A 4-p. folder describing "Auto-Air" compressor contains complete specifications of 60-105-160-210-315 cfm. truck-mounted units. It lists the various body types available and contains illustrations of ten typical assemblies.—**Davey Compressor Co., Kent, Ohio.**

INSULATING PANEL—Large folder tells all about Cemesto, a structural insulating board, made of Celotex cane fiber insulation, laminated on both sides with cement asbestos. A moisture-proof, vapor-resistant bituminous adhesive bonds the cement asbestos facing to the cane fiber core. The result is a tough and durable board that combines high thermal insulation with great structural strength.—**The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.**

AIR FILTERING—"A Comparative Study of Air Filtering Costs in Central Systems" is a 4-p. folder containing data on the costs of air filtration, with comparative figures on installation and maintenance costs of cleanable units and replacement-type air filters. A form is included for use by the specification writer and others in calculating comparative costs for a specific installation. —**Owens-Corning Fiberglas Corp., Toledo 1, Ohio.**

WHITE POCKET LUMBER—An 8-p. pamphlet entitled "A Talk About White Pocket Lumber" in an easy-to-read style offers practical information on the characteristics and uses of lumber containing "white pocket" or, as it is sometimes known, "white speck."—**West Coast Lumbermen's Association, 1410 S.W. Morrison St., Portland 5, Ore.**

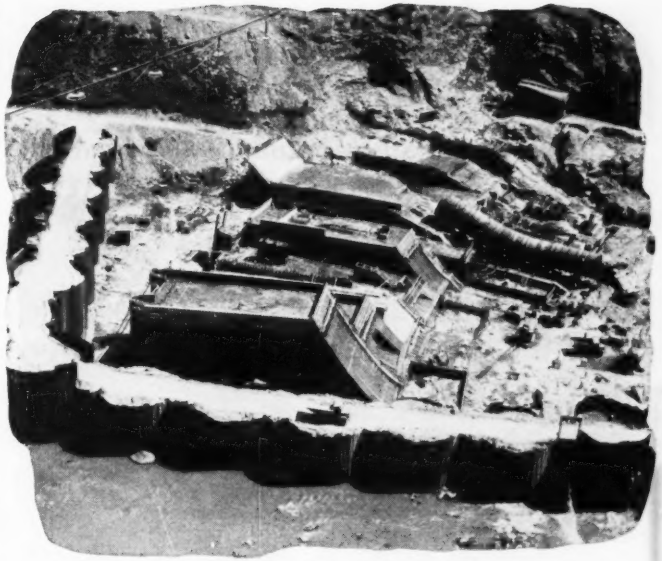
CLARIFIER—An 8-page bulletin describes and illustrates a new and radically different clarifier, the Spiraflow. Adaptable for either water or sewage treatment plants, its features include tangential inlet, vertical upward flow of sewage through a sludge blanket and a new type of positive grease, scum and oil removal. Included in this booklet are typical case histories, complete design and operation data, plan and elevation views and specifications.—**Advertising Dept., Yeomans Brothers Co., 1445 N. Dayton St., Chicago 22, Ill.**

ANCHORING DEVICES—A handbook tells of expansion bolts, screw anchors and masonry drills for anchoring wood and lag screws in solid material; for bolting into masonry, brick, concrete or stone; and for anchoring machine bolts and screws into masonry.—**The Rawlplug Co. Inc., 271 Church St., New York 13, N.Y.**

SEALING MASONRY SURFACES—The Thoro system for sealing of interior and exterior masonry surfaces is thoroughly described in a 20-p. booklet—Waterplug to stop the leaks, Thoroseal to fill and seal the surface, and Quickseal for a beautiful finish. Waterplug is an hydraulic cement which stops water instantly; Thoroseal seals and protects any concrete or other masonry surface; Quickseal is applied by brush and gives a fine, smooth finish.—**Standard Dry Wall Products, Inc., Box No. X, New Eagle, Pa.**

WALL FORM CONSTRUCTION—A 4-p. bulletin deals with the Symons system of wall form construction which utilizes panels, with tierods anchored at the sides instead of going through them. These ties act as spreaders and do away with 75 percent of bracing that the old type of forms requires.—**Symons Clamp & Mfg. Co., 4249 Diversey Avenue, Chicago 39, Ill.**

AERIAL SURVEYS—A profusely illustrated booklet tells about making aerial surveys and maps from photographs. Typical of the contents is this description of reconnaissance strip mapping: This is a highly specialized type of aerial survey for such specific purposes as highway location or relocation, for right-of-way investigation, for preliminary engineering on pipe-line and power-line projects, or for any kind of transmission line or transportation route. Used in conjunction with a profile strip, this map tells the whole story and provides complete background information. Safety engineers, police officials and highway planners should find the publication very helpful.—**Abrams Aerial Survey Corp., Lansing, Mich.**



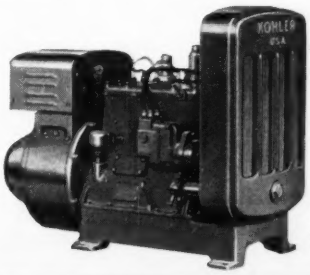
"Toe" on the downstream side of Etowah Dam. Estimated cost of the finished project is $27,000,000.00.

Night operations at Etowah Dam lighted by KOHLER *Electric Plants*

Long strings of floodlights stretching across the overhead cable provide night illumination that enables engineers, carpenters, welders and other workers to carry on round-the-clock schedules at the gigantic dam on Etowah River, near Cartersville, Georgia. Kohler Electric Plants provide the current for these, and for numerous other floodlights. When completed, the dam will be 155 feet wide at the base and 16 feet wide at the top where there will be a road for automobile traffic. On many of the world's largest construction projects, Kohler Electric Plants have been used for lighting, pumps, motors and power tools—because they are rugged, reliable, convenient and economical.

For stand-by protection, Kohler Electric Plants also fill important requirements. In public or industrial buildings, and in private homes, they assure continued operation of vital equipment when storms or accidents interrupt central station electricity.

Sizes are from 750 watts to 10 KW, with or without metal housing and skid base for portable service. Write for illustrated folder E-8. Kohler Co., Kohler, Wisconsin. Established 1873.



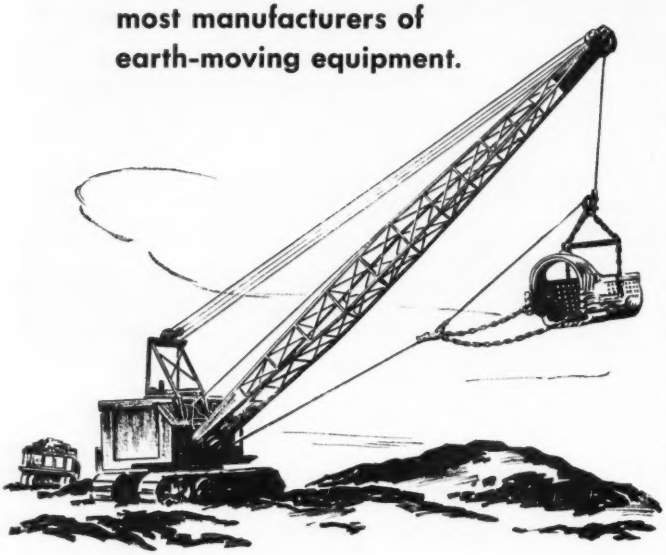
Kohler Electric Plant 3A21, 3KW, 115 volt AC. Length 41", width 16", height 27¼".

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS

FIRST WITH MANUFACTURERS . . .

J-M INDUSTRIAL FRICTION MATERIALS are specified as original equipment by most manufacturers of earth-moving equipment.



FIRST WITH OPERATORS . . .

Operators who want to keep maintenance costs low *know* that **JOHNS-MANVILLE FRICTION MATERIALS** are easy to wear in, hard to wear out.

If Johns-Manville materials are right to *start* with . . . they must be right to *stay* with. When you order replacements, remember that Johns-Manville says "stop" and "go" to more tonnage than any other friction materials . . . see your Johns-Manville Friction Materials distributor or write Johns-Manville, Box 290, New York 16, New York.

Johns-Manville
INDUSTRIAL FRICTION MATERIALS
No. 1 With Leading Manufacturers

GLASS BLOCK—Adding value to apartment buildings by glass block is the theme of a folder which explains how Insulux glass block panels are fire resistant, solve problems of illumination, minimize drafts, insulate, and provide the noise protection and privacy so important to apartment dwellers. It is also claimed that the material reduces fuel bills and lowers decorating costs.—**American Structural Products Co., subsidiary, Owens-Illinois Glass Co., Toledo 1, Ohio.**

MULTIPLEX PUMPS—SD and SDO Multiplex Pumps—centrifugal, multi-stage, split case, volute type, designed for medium and high pressure service—are described in a 16-p. illustrated booklet. Both types are made as two, four, six and eight-stage units with heads to 2,000 ft. and capacities from 100 to 4,000 gpm.—**Byron Jackson Co. Pump Division, Terminal Annex Box 2017, Los Angeles 54, Calif.**

NORDBERG DIESEL—A bulletin has been issued on a Nordberg Type 4SF-1 four-cycle, one-cylinder, 4½" x 5¼" diesel engine. This 4FS-1 engine has a rating of 10-15 hp. at operating speeds of 1200-1800 rpm. It was developed to meet the need for a simple, compact, dependable engine capable of continuous heavy duty service. It is offered as a complete, self-contained, ready to operate unit for direct connection or belt drive, as an electric generating set and as a pumping unit. In addition to a general description and pictures of three models of this engine, Bulletin 165 describes lubrication, fuel system, governor, cooling system and starting. Parts of the engine are illustrated and specifications are given.—**Nordberg Mfg. Co., Milwaukee 7, Wis.**

RELIEF VALVES—A bulletin contains the latest information on forged steel relief valves. Included is complete information on dimensions and weights, design detail, and correct installation. Edward all-steel relief valves are designed for a basic steam, oil or vapor working pressure of 600 lb. at 850 deg. F., but can be furnished with special carbon springs for more severe service conditions.—**Edward Valves, Inc., subsidiary of Rockwell Mfg. Co., East Chicago, Ind.**

NEW DIESEL ENGINE—Catalog features Mack Trucks' newly designed 4-cycle, 6-cylinder, 150 hp. diesel engine which has automatic timing, controlled combustion and fuel distribution. A companion publication is a 67-p. booklet on "Understanding the Automotive Diesel."—**Mack-International Motor Truck Corp., 350 Fifth Ave., New York 1, N.Y.**

EQUIPMENT MEN

and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

Sales

Lyon-Raymond Corp.—George G. Raymond, Jr., sales manager, has been elected vice-president of the board of directors.

Goodyear Tire & Rubber Co.—Reorganization of the field supervision of the mechanical goods sales division has been announced. O. A. Schilling will be in charge of eastern sales division; H. E. Langdon, central; R. B. Warren, southern and R. G. Abbott, western. M. W. Sledge is assistant manager of the belting sales department.

Plywood Division, Mengel Co.—Bruce A. Dean is general sales manager.

Gar Wood Industries, Inc.—Edward B. Hill is vice-president in charge of sales.

R. G. LeTourneau—George Wacker goes to Oakland, Calif., as assistant to the western sales manager; George Goettsche is sales representative for the new factory branch at Oakland; A. W. Travis is district sales representative at Portland, Ore., for Oregon, Washington, British Columbia and Alaska; L. D. LeTourneau, brother of president of company, is logging specialist in the Northwest and George C. Summers is district sales representative at Columbus, Ohio, for Kentucky, Ohio, Michigan, Ontario and Quebec. R. P. Nichols, D. K. Heiple, E. E. Weyeneth and H. R. McQuarrie, department heads, recently flew in a company-owned Lockheed Lodistar to 18 cities on a 10,000-mi. air hop to visit 48 heavy equipment distributors in the U.S. and Canada.

American Steel & Wire Co.—Harold T. Chester has been appointed tramway sales engineer, succeeding William C. Kuhn, retired.

Tennessee Coal, Iron & R.R. Co.—Levi W. Reeves is assistant sales manager of the Memphis, Tenn., office.

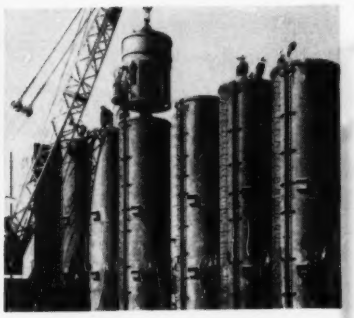
Keystone Asphalt Products Co., division of American-Marietta Co.—J. E. Poole is the new general sales manager.

Binks Mfg. Co.—H. J. Fink has been appointed to direct sales and service in Colorado, Kansas, Nebraska, Wyoming, Montana and New Mex-

(Continued on page 144)

VIBER SAVES TIME AND COST IN CONCRETE CONSTRUCTION

TESTS of new DESIGNS and DEVELOPMENT in VIBER EQUIPMENT PROVE INCREASED EFFICIENCY at LOWER MAINTENANCE COSTS

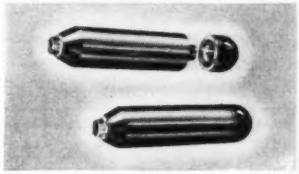


PX-6 EXTERNAL VIBRATOR EXTREMELY EFFECTIVE IN MANUFACTURE OF CONCRETE PRODUCTS AND HANDLING OF DRY MATERIALS.

The proper balance of amplitude and speed over a wide range produces marked improvement in the manufacture of concrete pipe and greatly increases the life of the forms. Many placement problems have been solved by this new vibrator.

VIBER RUBBER TIPPED VIBRATORS REDUCE FORM DAMAGE

Damage to expensive form lining materials necessitating frequent form replacement was the reason



for development of Rubber Tipped Vibrators. Severe tests on many large concrete jobs proved costly grinding due to damaged forms was greatly reduced. Another advantage of Viber's Rubber Tipped Vibrators is replaceable tip. Simply unscrew worn part and install new tip.

REVERSIBLE FEATURE PRACTICALLY DOUBLES THE LIFE OF CASINGS

Standard 6, 12 and 21 foot interchangeable Viber casings are reversible. Reversing is easily accomplished by unscrewing adapter and attaching it to the other end. All

cores are reversible. Viber casings are covered with durable, live, tire quality rubber.

For further information or descriptive literature on Viber equipment, please write Dept. 19

VIBER COMPANY • *CONCRETE VIBRATORS SINCE 1931*

726 South Flower Street, Burbank, California

(Continued from page 143)

ico from Longmont, Colo. C. J. Rood is manager of the branch in Indianapolis, Ind.; M. B. Scully at Princeton, Ill., for Iowa and northern Illinois; E. J. Cremer at St. Louis for Missouri and southern Illinois; B. R. Futon, Cleveland, Ohio, for Ohio; J. J. Lynch, Springfield and Boston, Mass., for New England and greater Boston area; and H. J. Dueno at Milwaukee, Wis., for Wisconsin, peninsular Michigan, Minnesota, and North and South Dakota.

Broderick & Bascom Rope Co.—Fred Zimmerman has been named director of sales and J. J. Sieber sales manager.

Industrial Power Division of International Harvester Co.—W. M. Holland is in charge of engine sales, I. P. Payne is assistant division sales manager and H. R. Carlson is southwest region manager.

Marion Metal Products Co.—W. H. Hammond has been elected vice-president. He will be in charge of sales.

General Motors Corp.—R. E. Danto has joined the sales staff of Detroit Diesel Engine Division as market analyst. In behalf of its retail personnel the division has been conducting an intensive training program to provide these men with latest information on sound industrial engine application techniques as applied to the GM Series 71 diesel engine.

Dresser Mfg. Division, Dresser Industries, Inc.—N. J. Thompson is sales representative in the Rocky Mountain and west coast areas.

Kaylo Insulation Division, American Structural Products Co.—Harry A. Bittner is supervisor of roof tile sales.

The Heil Co.—Henry Giles is sales manager of the Road Machinery Division.

The Timken Roller Bearing Co.—M. S. Downes is now general sales manager of the railway division.

Detroit Diesel Engine Division, General Motors Corp.—Leslie Southgate will serve as northeastern zone sales representative in New York, northern New Jersey and all of the New England states.

Link Belt Co.—J. H. Oakes is sales manager, inclosed drives, of the company's Philadelphia office.

General Electric Supply Corp.—Nels H. Fugelsang has been appointed sales manager at the Sacramento, Calif. office.

The B. F. Goodrich Co.—William A. Schaub is manager of the Denver district of the Industrial Products sales department, and R. P. Russell has been named manager of the Boston district.

Consolidated Western Steel Corp., U. S. Steel subsidiary—Hanford Haynes is in charge of the new Seattle sales office to serve the Pacific Northwest.

Askania Regulator Co.—W. W. Wheeler is sales manager.

U. S. Steel Supply Co.—Eugene G. Sheasby has been appointed general staff manager of the general sales division.

Cornell-Dubilier Electric Corp.—Charles H. Caine, vice-president, supervises the new Midwest direct factory sales office at 605 N. Washington Ave., Chicago.

Distributors

Tube Turns, Inc.—A. B. Judd Supply Co., Houston, Tex., is now a distributor for welding fittings and flanges.

Diamond Chain Co.—The following companies are new distributors: Century Supply & Equipment Co., Akron, Ohio; Hines Bearing & Industrial Supply, Billings, Mont.; The Ross-Willoughby Co., Columbus, Ohio; Ralph Shawaker Co., Toledo,

(Continued on page 146)

A NEW UTILITY BODY FOR THE NATION'S BIG HIGHWAY PROGRAM

The Low-Cost Dumpcrete

PAVING

BRIDGES

CURB AND GUTTER

WIDENING

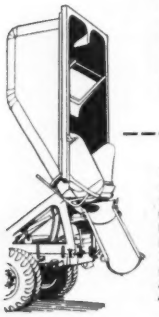
MEDIAN STRIPS

SAND, GRAVEL, EARTH

If you handle a variety of paving jobs—Here's a proved way to get more yardage at less cost. Set up a central mixer (a paver or portable mixer) for *close control* of your mix. Then haul in the fast, low-cost Dumpcrete and place *uniform* loads.

If you handle big paving jobs—The low-cost Dumpcrete can pick up from your paver for off-the-slab pours . . . culverts, bridges, turnouts, sidewalks, curb-and-gutters.

About the Dumpcrete—It's a non-agitating concrete body designed especially to haul air-entrained concrete (a must for extra durability and workability). The Dumpcrete costs less to buy, to run and to maintain. It loads fast and places fast. Learn how it can cut your costs. Mail the coupon today. There's no obligation.



The lower cost Dumpcrete is lightweight, watertight, with 13-foot chute, controlled higher discharge and lower center-of gravity. Hauls sand, gravel, and coal too. Available in 2, 3, and 4 yard sizes.

Send me facts about the cost-cutting Dumpcrete for paving work.

Name_____

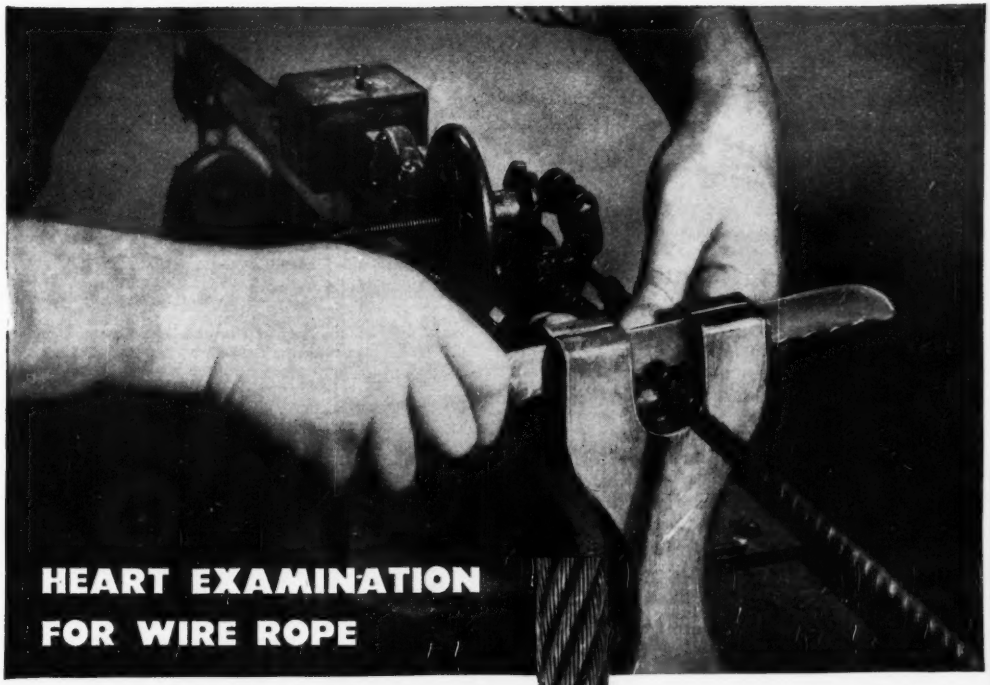
Firm_____

Address_____

DUMPCRETE

DIVISION, MAXON CONSTRUCTION CO., INC.

540 Talbott Bldg., Dayton 2, Ohio



HEART EXAMINATION FOR WIRE ROPE

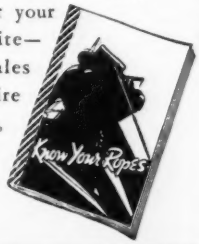
The fiber core in the heart of wire rope serves a fourfold purpose. It acts as a support for the wire strands. It provides flexibility. It cushions impact loads. It stores lubricant and feeds it to the strands after the rope has been put in service.

Because of these important functions, the centers used in Wickwire Rope must pass exhaustive tests at the cordage manufacturer's plant and in Wickwire's Testing Laboratory. Centers must be made of the highest quality fiber; absolutely uniform in diameter, density and length of lay. The rope must be lubricated to the point of saturation and, where called for, an identifying marker tape must be spun into the rope.

Tough specifications? Sure! But so are scores of other tests made during the manufacture of Wickwire Rope. That's why more and more rope users are finding out that you can't beat Wickwire Rope for performance, safety and long rope life. And as for service—Wickwire Distributors and Wire Rope Engineers in key cities everywhere are ready to help solve your wire rope problems and to provide prompt delivery of Wickwire Rope from strategically located warehouse stocks. Wickwire Rope is available in all sizes and constructions, both regular lay and WISSCOLAY *Pre*formed.

HOW TO REDUCE ROPE COSTS AND PROLONG ROPE LIFE

Thousands of wire rope users have found that the information packed in the pages of "Know Your Ropes" has made their work easier. It's full of suggestions on proper selection, application and usage of wire rope. It's easy-to-read and profusely illustrated. For your free copy, write—Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Mass.



WICKWIRE ROPE

A PRODUCT OF THE WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL AND IRON CORPORATION

CF&I SUBSIDIARIES

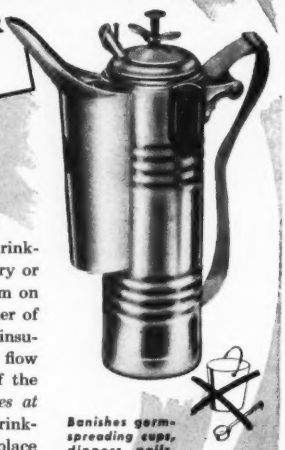
WIRE ROPE SALES OFFICE AND PLANT—Palmer, Mass. **EXECUTIVE OFFICE**—500 Fifth Avenue, New York 18, N. Y.

SALES OFFICES—Abilene (Tex.) • Boston • Buffalo • Chattanooga • Chicago • Denver • Detroit • Emlenton (Pa.) • Fort Worth • Houston • New York • Philadelphia • Tulsa

PACIFIC COAST SUBSIDIARY—The California Wire Cloth Corporation, Oakland 6, California

Important TO HEALTH AND EFFICIENCY

COOL, PURE DRINKING WATER ...ON THE JOB



Dobbins Portable Sanitary Drinking Fountain

Assures an adequate supply of cool, pure drinking water for workers *everywhere*—in factory or field. Protects their health, and keeps them on the job. Fountain has inner water container of stainless steel. Four gallon tank is fully insulated. Constant air pressure for instant flow of water is furnished by a few strokes of the pump at widely spaced intervals. *Operates at the press of a button,* like any bubbler drinking fountain. May be easily carried from place to place by shoulder strap, or mounted on truck, tractor or locomotive.

Banishes germ-spreading cups, dippers, pails.

DOBBINS MANUFACTURING CO.
DEPARTMENT 652 ELKHART, INDIANA

Dobbins Superbilt PORTABLE DRINKING FOUNTAIN

WRITE TODAY FOR FREE DESCRIPTIVE FOLDER

MADESCO BLOCKS
stand the gaff

Protect your wire rope investment!

USE GOOD TACKLE BLOCKS—check the age of the blocks you are now using.

Tackle blocks stay around a long time—that's the way we make them. However, sheaves, pins and bushings eventually show signs of wear. All these can affect the life of your wire rope.

MADESCO blocks will extend the life of your wire rope, due to Timken roller bearings, bronze bushings or automatically lubricated sheaves.

MADESCO blocks are made in a complete line to meet every requirement.

Send for complete catalog . . .

wire rope blocks

A quarter century of service

MADESCO
TACKLE BLOCK COMPANY
EASTON, PENNSYLVANIA

(Continued from page 144)

Ohio; Joseph E. Loughead Co., Kalamazoo, Mich.; J. W. Vaughan Co., Greenville, S. C.; Crossley Co., Erie, Pa.; The Mine & Smelter Co., El Paso, Tex. and The Harry Cornelius Co., Albuquerque, N. M.

Pennsylvania Refining Co. — New distributors for Penn Drake petroleum and specialty products in the Cleveland area are The Blumel Ignition Co., 14,201 Euclid Ave., East Cleveland; Maley & Mellert Co., 3,601 Carnegie Ave., Cleveland; and Motor Truck Equipment Co., 12,000 Harvard Ave., Cleveland.

Osgood Co. and The General Excavator Co.—New distributors for both these companies are Contractor's Service, Inc., 317 W. Worthington Ave., Charlotte, N.C.; Dulaney Service Co., Box 96, San Antonio 4, Tex.; and the Manning Equipment Co., 17,560 Chicago Ave., Lansing, Ill.

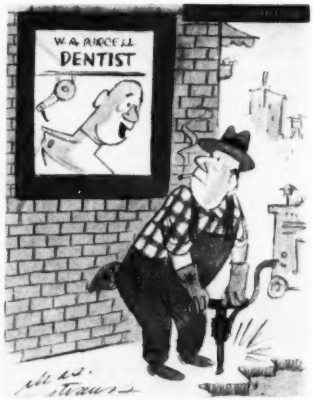
Colonial Electric Products, Inc.—Colonial Sales Distributors of Rochester, N.Y., has been appointed regional factory distributor for cold cathode fixtures and 15,000 hr. lamps.

Hyster Co.—Machinery & Supplies Co., Inc., Kansas City, Mo., is now a distributor of lift trucks, straddle trucks and mobile cranes.

Phenoplast Corp. — L. Sonneborn Sons, Inc. is exclusive national distributor for Phenoplast in the industrial and institutional maintenance fields.

Alhydro, Inc.—New distributors for Alhydro Floc Producer are H. D. Fowler Co., Inc., Seattle, Wash., and the General Filter Co., Ames, Iowa.

Gar Wood Industries, Inc.—There are two new distributors for all products of the Wayne Division. They are:



"Let me have the drill, please,—I want to play a joke."

Mike and Joe Equipment Co., 139 Central Park, Rochester, N. Y. and Peerless Mfg. Corp., 4300 Bluffton Rd., Ft. Wayne, Ind.

Personalities

Nordberg Mfg. Co.—Jack B. Bond has been appointed district manager of the central territory for the crusher and process machinery division.

Allegheny Ludlum Steel Corp.—Melvin C. Harris has resigned as vice-president in charge of production, succeeded by C. B. Pollock.

Hyster Co.—Alfred I. Stuart has been appointed head of the methods engineering department.

State Machinery & Supply Co., Inc.—Joe Lavery has joined the company to cover southeastern South Carolina.

U. S. Rubber Co.—Walter F. Spoerl is general sales manager, under supervision of vice-president E. G. Brown, for all divisions of this company. Robert D. Gartrell is development manager for all divisions and Wesley A. Armstrong is production manager.

Marlow Pumps—Vincent Vandervoort has been elected vice-president.

The Asphalt Institute—William H. Meth has been appointed district engineer at the newly established office at Atlanta, Ga.

Pittsburgh Equitable Meter Division of Rockwell Mfg. Co.—Ralph G. Caonette has been appointed general manager.

Detroit Steel Products Co.—H. F. Wardwell is chairman of the board, W. C. Owen is now president and William Gillett and E. C. Hodges were elected vice-presidents.

Evans, Coleman & Evans, Ltd.—William F. Foster has been appointed general manager. Company is building supply dealer and quarry operators of Vancouver, B. C.

Building Products Division of Great Lakes Carbon Corp.—John W. Moorhead is product promotion manager for the division's rock wool building insulation and Permalite plastic and concrete aggregate.

Gar Wood Industries, Inc.—Edward F. Fisher has been elected president.

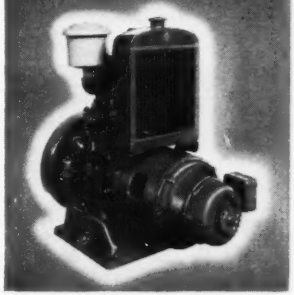
Amercoat Division of American Pipe and Construction Co.—Arthur B. Smith has been appointed district manager of the Southeastern district, with headquarters in Jacksonville, Fla.

Wyzenbeek & Staff, Inc.—Robert L. Burke has been appointed general manager of this company which manufactures Wyco flexible shaft

(Continued on page 148)

POWER YOU CAN COUNT ON
at cost you can afford

WITTE Small-Diesel Pioneers



Witte Dieselectric Model ADRE4 — 3 KVA — AC

Witte Dieselectric Plants are the most reliable power sources you can install . . . and their low cost of operation will amaze you.

That's because Witte, the small diesel pioneer, builds "big diesel" advantages into these compact, self-contained Dieselectric Plants. They start and operate on low-cost diesel fuel, prepared for maximum efficiency in the precombustion chamber. They'll continue furnishing daily service for years on end.

Witte Dieselectric Plants range in size from 3 to 10 KVA-AC; 2.5 to 8 KW-DC. There's also a complete line of Witte Diesel Power Units from 4 to 12 H.P. One of these units can save you money. See your Witte Dealer today . . . he'll recommend the *right* unit, then provide parts and service for long, profitable engine life.

WITTE ENGINE WORKS, KANSAS CITY 3, MO., U. S. A.
Division of Oil Well Supply Company

USS WITTE DIESELECTRIC PLANTS
UNITED STATES STEEL

OWENS ARE 'WATERDOGS'
at HOME in the WATER . . .
and 'DOGS' for PUNISHMENT

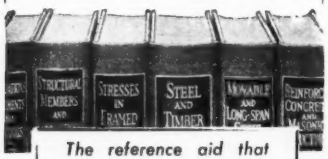
OWEN CLAMSHELL BUCKETS INSURE A BIGGER DAYS WORK

Owen Type DX Extra Heavy Duty Buckets are ideally suited for under water dredging operations. Sealed, grit-proof bearings are impervious to water and abrasive materials. Proper shell curvatures assure complete and rapid discharge of wet, sticky clay and sludge.
Write for the Owen Catalog TODAY.

A MOUTHFUL AT EVERY BITE

THE OWEN BUCKET COMPANY
6020 Breakwater Ave., Cleveland, O.
BRANCHES: NEW YORK · PHILADELPHIA · CHICAGO · BERKELEY, CALIF.

Save time and money on construction jobs



The reference aid that helps you solve your toughest construction problems

With the construction work that lies ahead for every engineer, it is only up to you to assure yourself of superior workmanship—ensure your work of the finest structural qualities—by providing yourself with this revision of the famous Hool and Kinne Library—the books which for years have been providing structural engineers with the facts they need on every problem concerned with the design and construction of civil engineering structures.

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And prepared by a staff of sixty-three well-known engineers, each a specialist in his field.

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Each one of these six volumes is a complete reference in itself on some aspect of structural engineering. The library

▸ **COVERS** the how and why of foundation and substructure design and construction, the general theory of structural members, the detailed design of such members and the design of their connection with other members.

▸ **EXPLAINS** the principles of statics, reactions, moments and shears in beams and trusses, influence lines, methods of computing stresses in lateral trusses and portal bracing.

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(Continued from page 147)

machines, flexible shafts, flexible shaft tools and concrete vibrators.

Miscellany

Armstrong Cork Co.—A 10 to 15 percent reduction in the price of corkboard has been announced.

Timber Structures, Inc.—Seattle division office and warehouse have moved to 2601 S. 98th St.

Airquipment and Aeroil Co., Inc.—As a result of his recent 12,000-mi. tour of the East and Midwest, Newman L. Smith, president, has announced a change in the method by which the company's ground and materials handling equipment will be distributed. Seven market centers are being set up to give dealers in all areas 24-hr. service on orders. Regional offices and warehouses have already been established in New York, Chicago and Cleveland. Four other cities will be added soon.

Bailey Meter Co.—The following are new field engineers: R. E. Byers, St. Louis; N. P. Campbell, San Francisco; G. F. Fitzpatrick, Denver; R. A. Homan, Pittsburgh; T. A. Melton, Charlotte, N. C.; W. G. Thiemann, New York; J. F. Kuntz, Cleveland;

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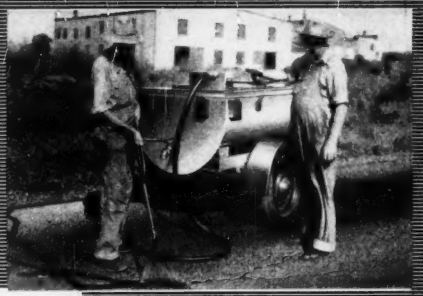

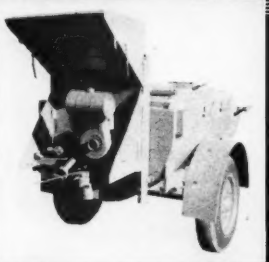

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Central Machinery Co.—R. E. Reed has become assistant manager.

Kennecott Copper Corp. — E. T. Stannard, president, will retire this year to be succeeded by Arthur D. Storke, president of Climax Molybdenum Co.

The Dow Chemical Co.—Earl W. Bennett is chairman of the board, L. I. Dean, president and Mark E. Putnam, general manager.

Dravo Corp.—Three new directors are Gordon W. Cameron, Louis A. Mertz and H. H. Sturdy.

International Harvester Co.—Peter A. Becker has been named general superintendent, Melrose Park Works, replacing Brooks McCormick, transferred to Kansas City, Mo., as assistant district manager of the general line and industrial district office of the Industrial Power Division.

Ceco Steel Products Corp.—H. G. Haake is now manager in charge of operations in the Pacific coast states. W. F. Norton is appointed assistant district manager of the Los Angeles office and F. E. Jennings, district manager, and P. E. Johnson, assistant, continue in charge of the San Francisco office.

U. S. Mengel Plywoods, Inc.—Headquarters is now at 1215 So. 7th St., Louisville, Ky.

Cochran Corp.—Substantially all of the capital stock of the Liquid Conditioning Co. has been acquired by this corporation.

Universal Concrete Pipe Co.—Production capacity at the Decatur, Ala. plant has been tripled by a recently completed expansion program.

American Steel & Wire Co.—The National Safety Council has given a distinguished service award to the Cleveland, Ohio, plant for a record of 3,000,000 man-hours without a lost-time accident.

The Geo. Raekle & Sons Co.—Company has opened a branch plant in Houston, Tex. They manufacture concrete roof decks, floor slabs and cast stone.

SKF Industries, Inc. — A unique method of keeping its principal customers advised of the stock availability of ball and roller bearings in which they are interested has been introduced.

Wagner Electric Corp.—A 90,000 sq.ft. floor space plant on eight acres has been acquired at Mt. Vernon, Ill.

American Structural Products Co.—William A. Lloyd and Isaac Keith are sales engineers for Kaylo insulation at the Washington, D. C., and St. Louis, Mo., offices, respectively.

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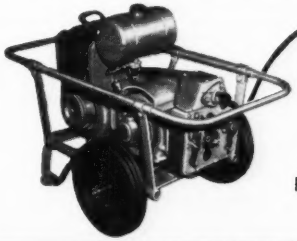

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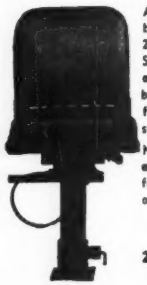
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Advertisers in this issue

Alemite Div., Stewart-Warner Corp. 33
Allis-Chalmers 22, 23
American Hoist & Derrick Co. 93, 132
Armstrong Bros. Tool Co. 151
Athey Products Corp. 72
Atlas Powder Co. 10
Austin-Western Co. 9

Barber-Greene Co. ..... Insert bet. 48, 49
Bethlehem Steel Co. 109, 137
Black & Decker Mfg. Co., The 21
Blackhawk Mfg. Co. 114
Blaw-Knox Div., Blaw-Knox Co. 76, 77, 118
Briggs & Stratton Corp. 107

California Welding & Blacksmith Shop, Inc. 115
Carnegie-Illinois Steel Corp. 96
Caterpillar Tractor Co. 68, 69
Century Geophysical Co. 121
Chain Belt Co. of Milwaukee 20
Chrysler Corp (Industrial Engine Division) 49
Cleaver-Brooks Co. 134
Cleveland Trencher Co. 75
Clyde Iron Works, Inc. 124
Coffing Hoist Co. 140
Complete Machy & Equip Co. Inc. 150
Construction Machy Companies 111
Construction Methods 102, 103
Continental Rubber Works 126
Cumberland Portland Cement Co. 97

Detroit Diesel Engine Div., General Motors Corp. 64
Diamond Chain Co. 55
Dixon Valve & Coupling Co. 48
Dobbins Mfg. Co. 146
Dotmar Industries, Inc. 118
Douglas Fir Plywood Assn. 92
Drake-Williams-Mount 108

Electric Tamper & Equipment Co. 149
Embury Mfg. Co. 104
Eveready Brick Saw Co. 4
Euclid Road Machinery Co., The 6, 7

Fairbanks-Morse & Co. 108
Farquhar Co., A. B. (Conveyor Div.) 139
Flexible Road Joint Machine Co. 112
Flexible Steel Lacing Co. 140

Galion Iron Works & Mfg Co., The 52
Gardner-Denver Co. 53
General Excavator Co., The 124
GMC Truck & Coach Div., General Motors Corp. ..... Insert bet. 120, 121
Goodrich Co., The B. F. 1
Goodyear Tire & Rubber Co., The 34
Greenlee Tool Co. 122
Griffin Wellpoint Corp. 104
Gulf Oil Corp. 29

Harnischfeger Corp. ..... Insert bet. 120, 121
Hartford Fire Insurance Co. 130
Haynes Products Co. 150
Heltzel Steel Form & Iron Co. 106
Hetherington & Berner, Inc. 136
Hough Co., The Frank G. 25

Independent Pneumatic Tool Co. 18, 19
Inland Steel Co. ..... 2nd Cover
International Harvester Co., Inc. (Industrial Power Division) 30, 31

Jackson Vibrators, Inc. 149
Jaeger Machine Co., The 65
Johns-Manville 142
Johnson Co., The C. S. 61

Kennametal, Inc. (Mining Div.) 105
Koehring Company 61
Kohler Company 141
Kwik-Mix Company 60, 61

Laclede Steel Co. 116
Laughlin Co., The Thomas 94
Lauson Co., The 129
Lehigh Portland Cement Co. 26
Le Tourneau, Inc., R. G. 16, 17
Lima Shovel & Crane Div., Lima-Hamilton Corp. 152

Lincoln Electric Co. 117
Link-Belt Speeder Corp. 71
Lone Star Cement Corp. 5

Madesco Tackle Block Co. 146
Marlow Pumps 81
Master Builders Co., The ..... 3rd Cover
Maxon Construction Co., Inc. (Dumpcrete Division) 144
McCulloch Motors Corp. 13
McGraw-Hill Book Co., Inc. 148
McKiernan-Terry Corp. 8
Michigan Power Shovel Co. 135
Mine Safety Appliances Co. 127
Mixers Mfrs Bureau ..... Insert bet. 120, 121
Mixermobile Manufacturers 86, 87
Montgomery & Co., Inc. 150
Moretrench Corp. 98

Northwest Engineering Co. 11

Oliver Corp., The 2, 3
Osgood Co., The 124
Owen Bucket Co., The 147

Paris Mfg Co. 89
Parsons Company 61
Perfection Steel Body Co., The 56
Powder-Power Tool Corp. 95
Preformed Wire Rope Information Bureau 128

Quaker Rubber Corp. 28
"Quick-Way" Truck Shovel Co. 90

Riddell Corp., W. A. 131
Rogers Brothers Corp. 66
Rotary Concrete Drill Co. 111

Schramm, Inc. 12
Shunk Mfg. Co. 66
Smith Co., The T. L. 153
Sonoco Products Co. 120
Standard Dry Wall Products 43
Standard Oil Co. (California) 57
Standard Oil Co. (Indiana) 67
Standard Steel Works 148
Stang Corp., John W. 116
Stemco Corp. 138
Sterling Machinery Corp. 150
Sterling Wheelbarrow Co. 132
Symons Clamp & Mfg. Co. 108

Templeton, Kenly & Co. 42
Texas Company 14, 15
Thew Shovel Co., The 27
Timken Roller Bearing Co., The ..... 4th Cover
Trackson Company 73
Truck Mixer Mfrs Bureau 133
Tulsa Winch, Div. Vickers, Inc. 24

Unit Crane & Shovel Corp. 32
U. S. Steel Corp., Subsidiaries 59, 96, 147
Universal Atlas Cement Co. 59
Universal Form Clamp Co. 113
Universal Manufacturing Co. 119

Viber Company 143
Vulcan Iron Works 54

Waterloo Foundry Co. 119
Wellman Engineering Co., The 129
White Company, David 78
White Mfg. Co. 151
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp. 145
Wico Electric Co. 110
Witte Engine Works Div., Oil Well Supply Co. 147
Wooldridge Mfg. Co. 91
Worthington Pump & Machinery Corp. 99

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(Classified Advertising)

Employment

Position Vacant 150

Educational

Books 150

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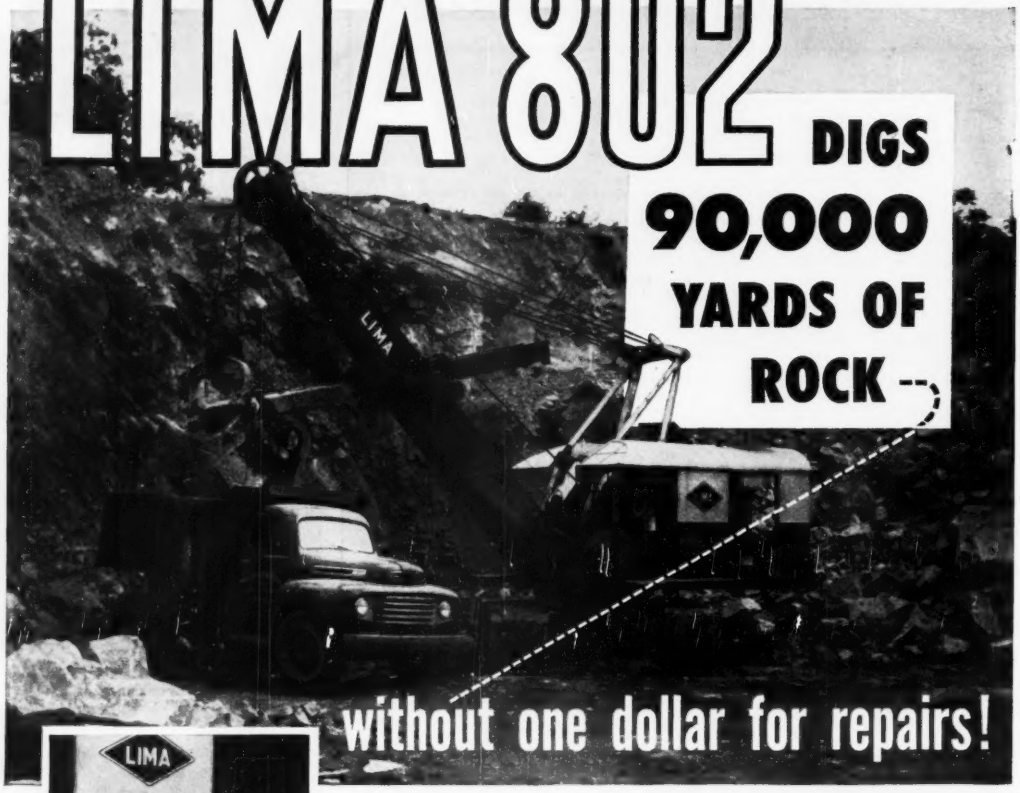

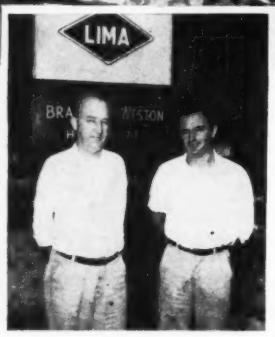

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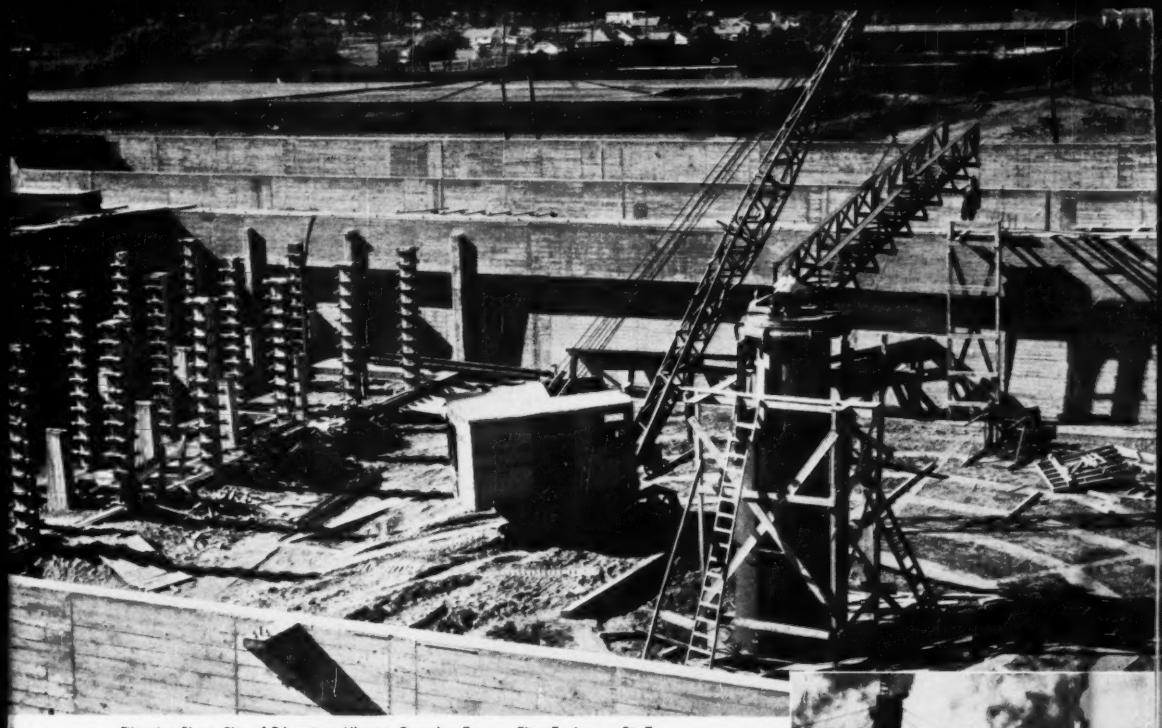

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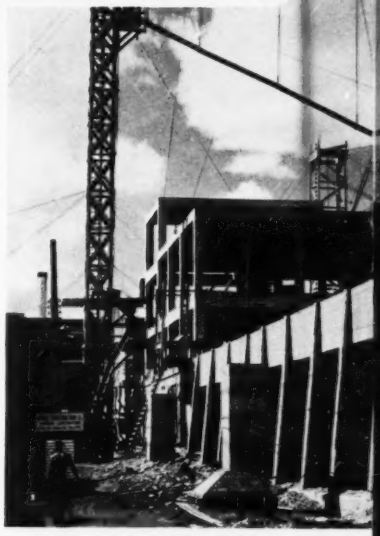

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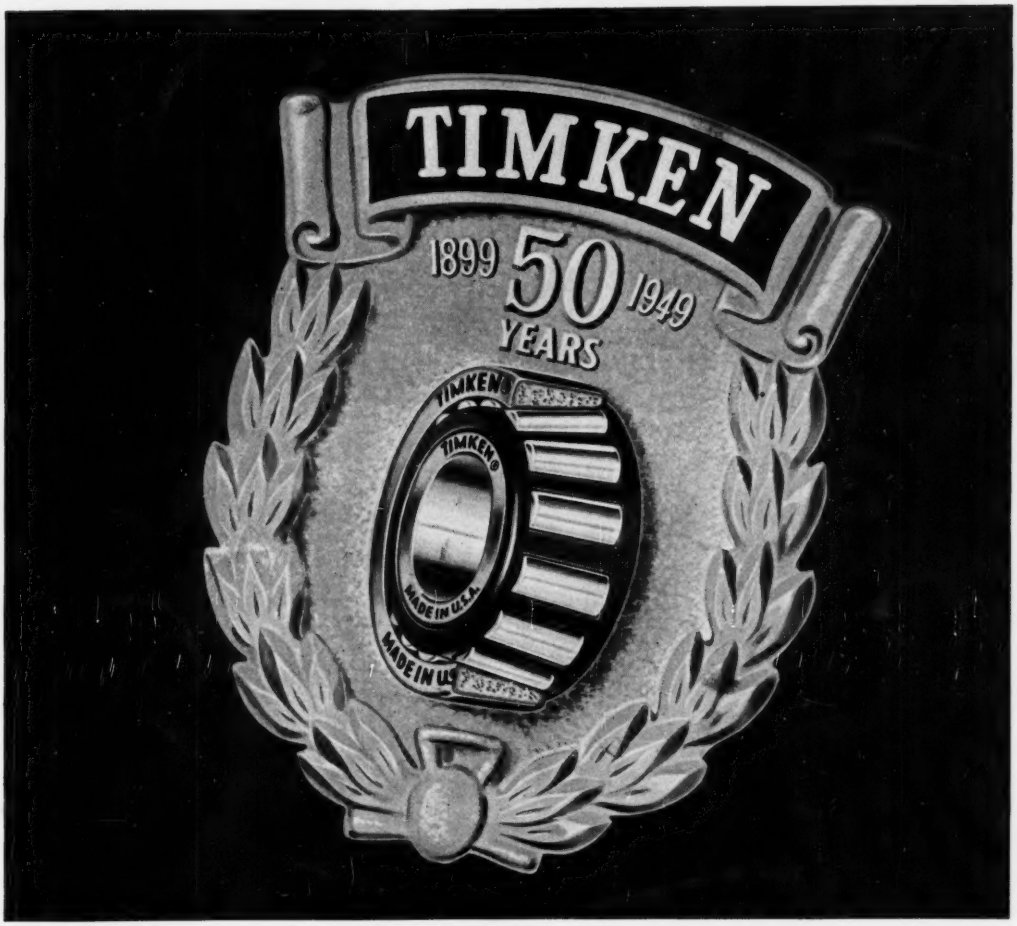

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